ENGINEERING NEWS-RECORD

AUG. 6, 1959

PRICE 50 CENTS

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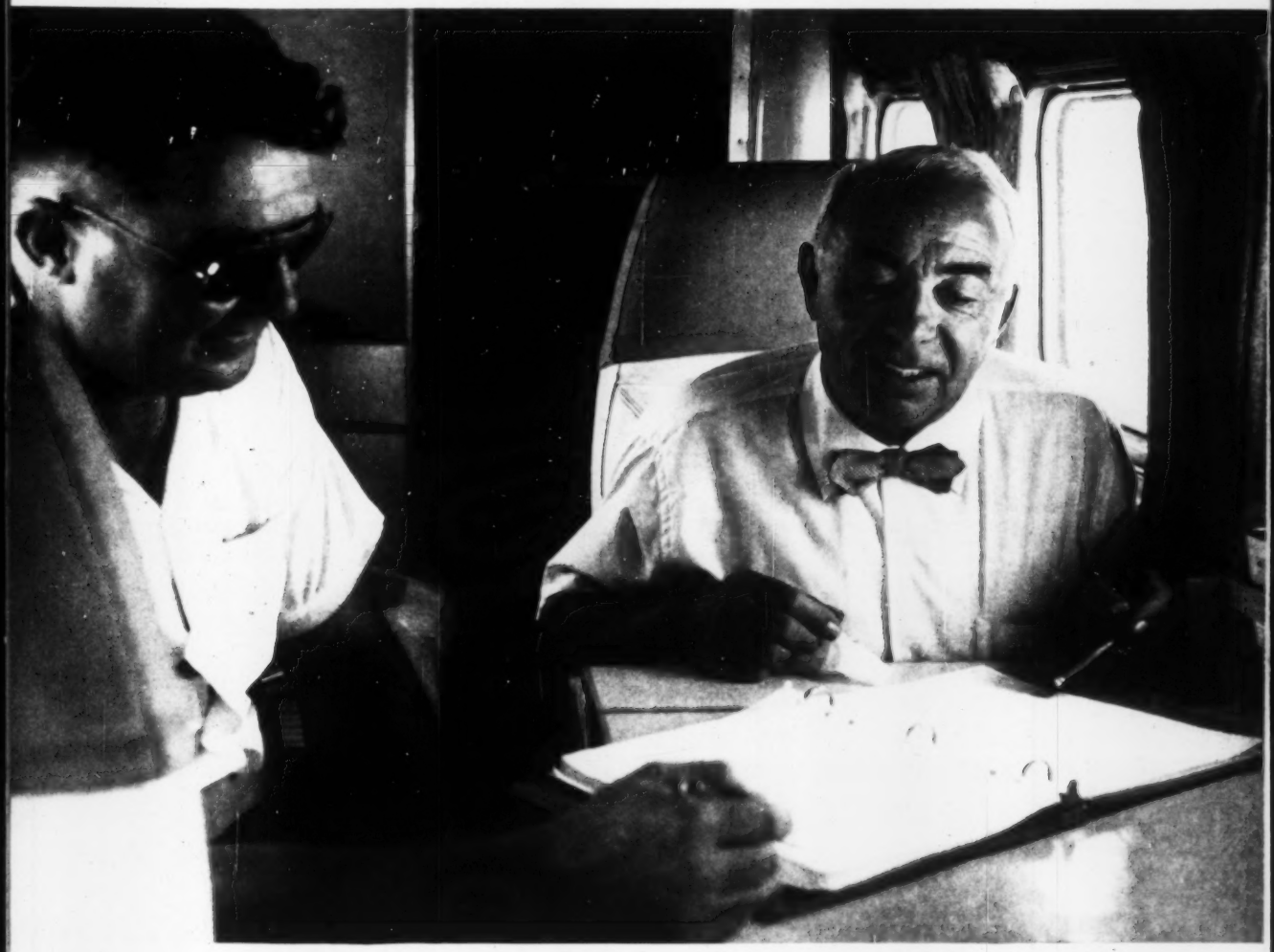

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A McGRAW-HILL PUBLICATION

STEVENS RICE GS
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Completes 46 Structures in 4 Months

at Petroleum Chemicals, Inc.

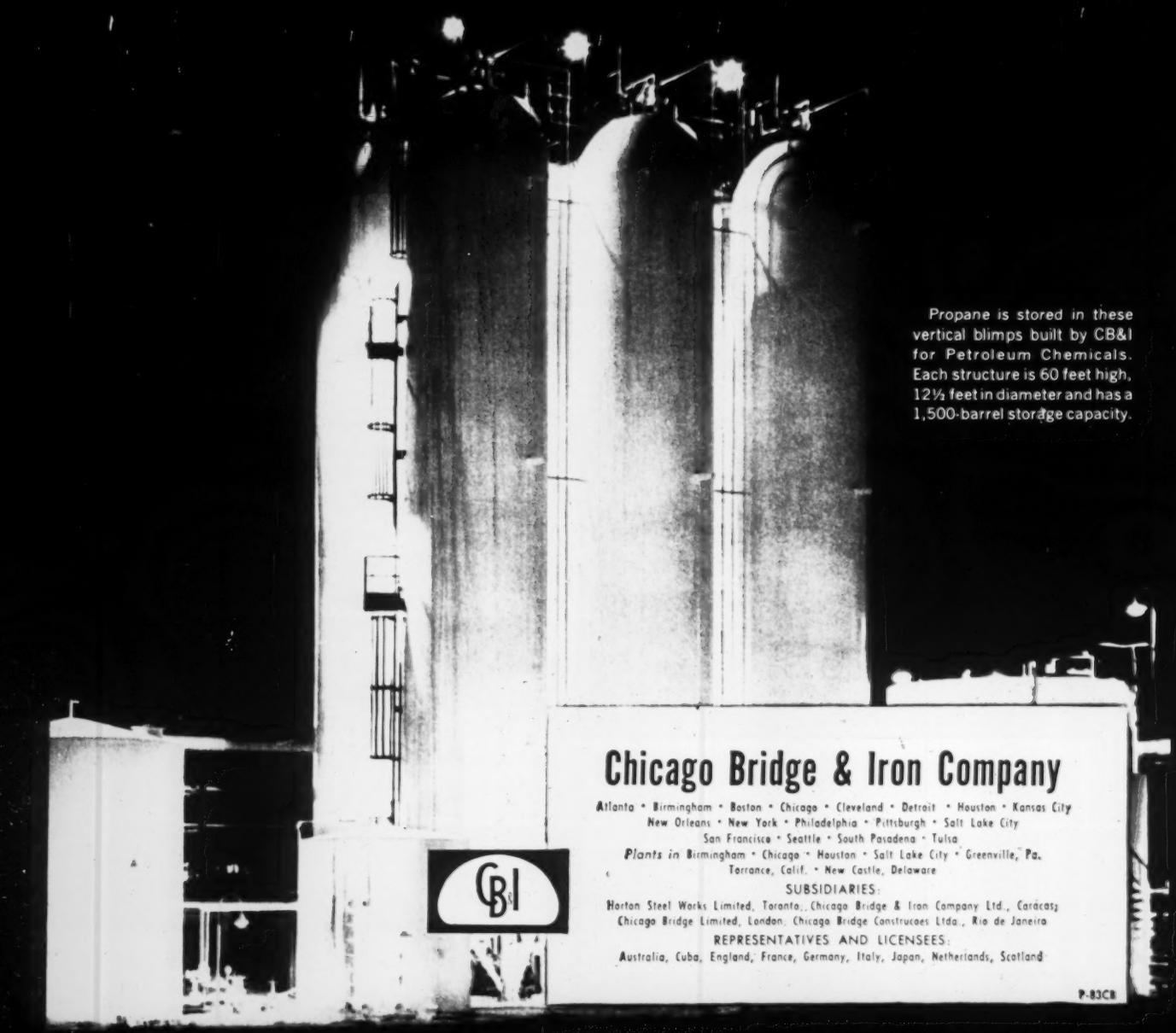
CB&I's *coordinated services* played a major role in construction of three new petrochemical plants recently placed on-stream by Petroleum Chemicals, Inc., at Lake Charles, Louisiana.

CB&I's assignment: Fabricate and erect 13 processing towers and 33 storage tanks for an expansion program that would—and did—put three plants in operation during a four-month period.

The new plants—ammonia, ethylene and ethylene oxide-glycol—have catapulted Petroleum Chemicals into a major petrochemicals producer, less than four years after its founding.

Companies on the move, such as Petroleum Chemicals, know they can depend on CB&I's *coordinated services* to meet exacting specifications and schedules. The reason: Expert, *one source* responsibility for engineering, fabrication and erection.

These are the benefits of CB&I's seven decades of *craftsmanship in steel*. Write our nearest office for the bulletin: *Development of the Oil Storage Tank*.



Propane is stored in these vertical blimps built by CB&I for Petroleum Chemicals. Each structure is 60 feet high, 12½ feet in diameter and has a 1,500-barrel storage capacity.

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P-83CB

more batches per day
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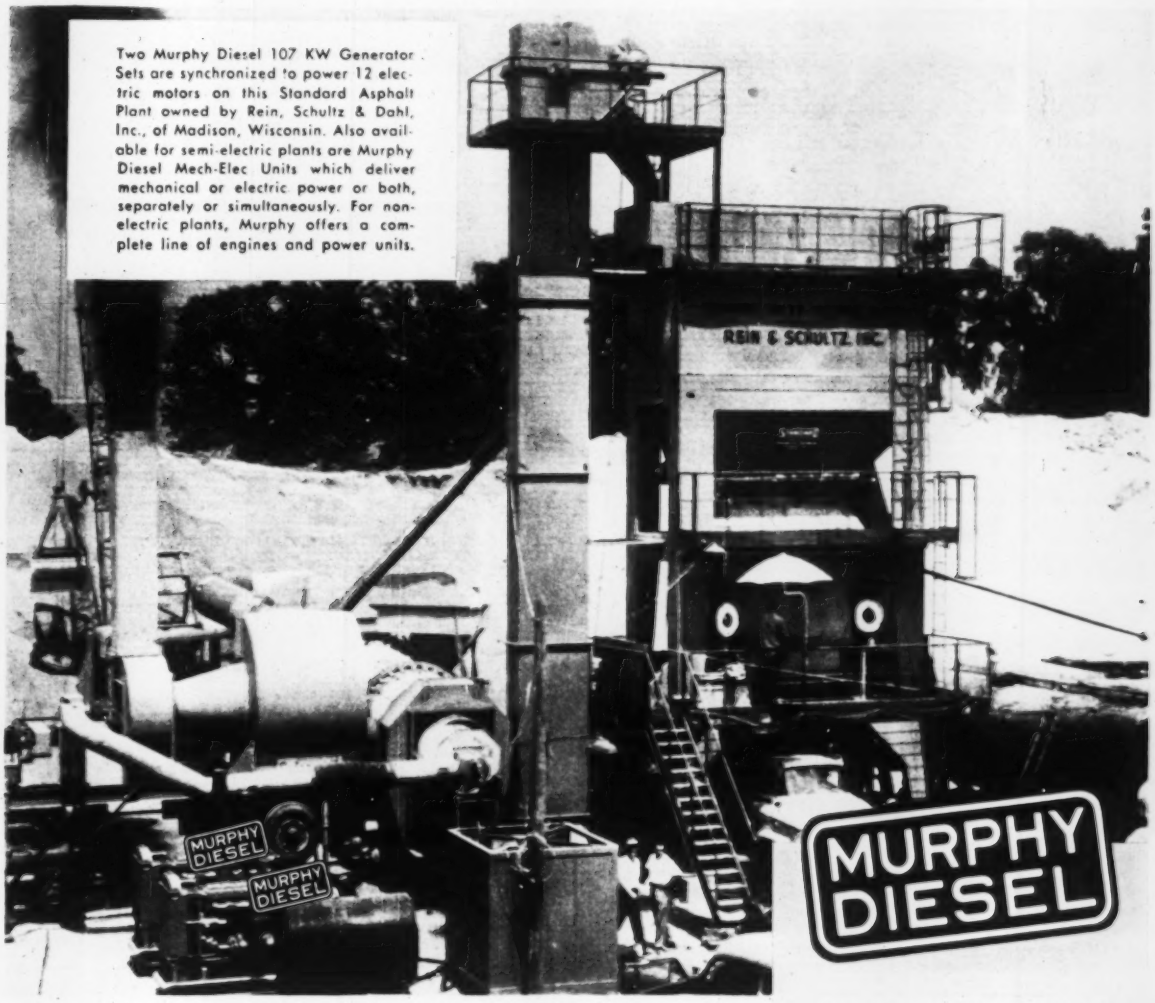
When you have Murphy Diesel Power on your plant, you can depend on steady power output hour after hour. You get more *productive* time . . . and more batches per day. Add Murphy Diesel fuel economy and low maintenance requirements and you get those profitable extra batches at lower cost. That's why so many bituminous concrete producers like Rein, Schultz & Dahl, Inc. use dependable Murphy Diesel Power to keep their plants operating profitably.



Two Murphy Diesel 107 KW Generator Sets are synchronized to power 12 electric motors on this Standard Asphalt Plant owned by Rein, Schultz & Dahl, Inc., of Madison, Wisconsin. Also available for semi-electric plants are Murphy Diesel Mech-Elec Units which deliver mechanical or electric power or both, separately or simultaneously. For non-electric plants, Murphy offers a complete line of engines and power units.

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HEAVY-DUTY POWER for Construction

Murphy Diesel engines and power units are available in sizes from 96 to 264 H.P. with engine speeds of 1200 and 1400 rpm. "Packaged" generating units are available with capacities ranging from 64 to 165 K.W.

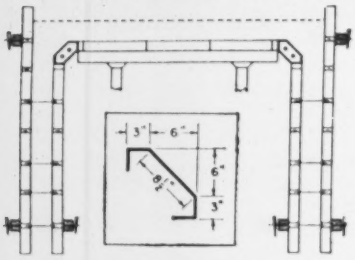
Job Finished 3 Weeks

How to Pour a Tunnel in a Hurry...

Symons Culvert Forms The Answer

When awarded a contract to build a 340 ft. tunnel, Schweiger Construction Company, Kansas City, Mo., faced the problem of how to do it fast and as economically as possible.

Symons Culvert Forms solved the problem. They eliminated the need for any special form or job-built construction.



Schweiger used Symons 1" steel channel filler horizontally on top of 6' vertical panels on the inside of the walls. Culvert Forms were placed on top of this filler. The forms underneath were stripped with no difficulty and the fillers and culvert forms were then removed without disturbing the decking for the slab, which was left in place for an additional curing period. Walls and top slab were poured monolithically in three pours. *Job was completed in three weeks.*

Symons forms, shores and column clamps may be rented with purchase option. Additional information on *Symons Culvert Forms* is available upon request.

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Real Money-Making Output isn't produced with flash-in-the-pan operation. It isn't the result of hoist line speed, engine horsepower or any other *one* thing. Money-Making Output is the result of the perfect synchronization of smooth action, dependable power and versatile ability through easy, accurate control, whether it's setting steel or digging rock.

Don't take our word for it—ask Northwest owners! Northwests stay on the job! *They are always ready to go. We hear it everywhere, and Northwest owners will tell you so.* The smooth coordination of action between assemblies for machine movements—the Northwest Dual Independent Crowd that utilizes force most other independent crowd shovels waste—the easy, accurate control of the drum clutches through the Feather-Touch Clutch Control, with its true *feel* of the load—the precision in handling and spotting loads made possible by the smooth acting Uniform Pressure Swing Clutches—and the many other Northwest advantages backed by Northwest ruggedness of construction take output beyond mere hourly production.

Here is the versatility, stamina and performance to deliver—not just hour-by-hour but day-by-day and week-by-week—a high *monthly* output. Ability to stay on the job and high output are the reasons why one out of every three Northwests sold is a repeat order.

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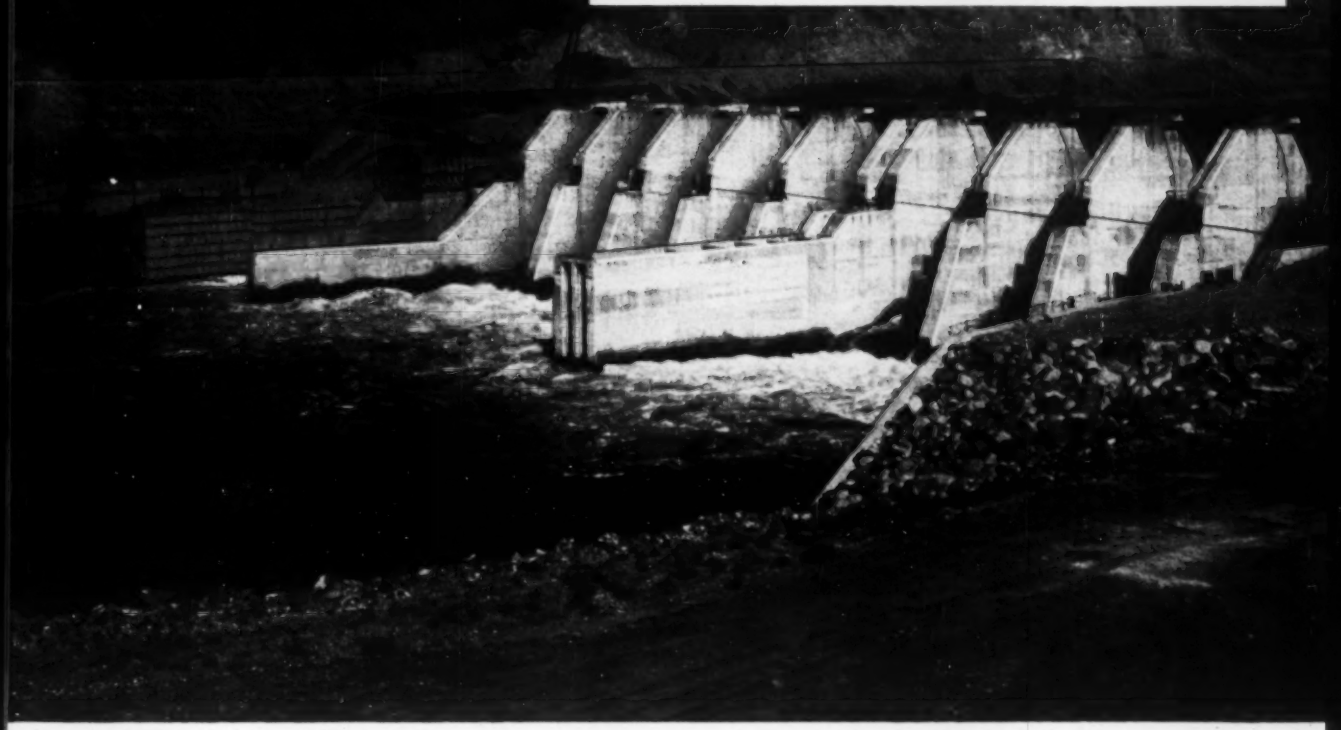
Texaco Simplified Lubrication Plan Keeps

W. N. EVANS (left), Contractors Manager for Rocky Reach Contractors, points out that the general high production rate on the job can be attributed to extended machine life and decreased downtime. He specified Texaco lubricants after thorough experience with these products in previous major Western dam projects. E. S. Saunders, Texaco Contractor Sales Representative, helped him choose the six basic lubricants required for all equipment on the job.

Rocky Reach Dam and Powerhouse on the Columbia River is being constructed for the Public Utility District No. 1 of Chelan County, Wenatchee, Washington. The Project was designed by Stone & Webster Engineering Corporation and construction is under their supervision.

Contracts approximating $70,000,000 for its construction were let in two stages. Both contracts were held by a contracting group called Rocky Reach Contractors. Members of the group are L. E. Dixon Co., The Arundel Corporation, Guy F. Atkinson Co., The Hunkin-Conkey Construction Co., and American Pipe & Construction Company. Contractors Manager is W. N. Evans, Vice President of L. E. Dixon Company.



Rocky Reach Construction on Schedule

Only six lubricants are needed to handle all major requirements on the Rocky Reach Dam project. That's how the Texaco Simplified Lubrication Plan keeps inventory down, cuts handling and storage costs, helps maintenance personnel sidestep the dangers of misapplication. Here's what Contractors Manager W. N. Evans has to say about it:

"The high production we've been getting from our equipment at Rocky Reach Dam is due in large measure to the help we've had from Texaco. The Texaco Lubrication Plan—and the service that goes with it—really help keep our equipment on the job. We've had little downtime and we're getting longer machine life."

Mr. Evans and the local Texaco Lubrication Engineer chose the six basic Texaco lubricants to meet the requirements of the project after a complete lubrication survey of all equipment. Their selections: 1) *Texaco Ursa Oil Super Duty* for all super-charged engines; 2) *Texaco Ursa Oil Heavy Duty* for all other diesel and gasoline engines and air compressors; 3) *Texaco Rock Drill Lubricant EP;* 4) *Texaco Marfak Multi-Purpose 2* for all grease applications; 5) *Texaco Track Roll Lubricant;* and 6) *Texaco Crater Fluids* for open gears and wire rope.

Your Texaco Lubrication Engineer can show you how much the Texaco Simplified Lubrication Plan has saved other contractors—how it can help you. Call the nearest of the more than 2,300 Texaco Distributing Plants, or write Texaco Inc., 135 East 42nd Street, New York 17, N. Y.

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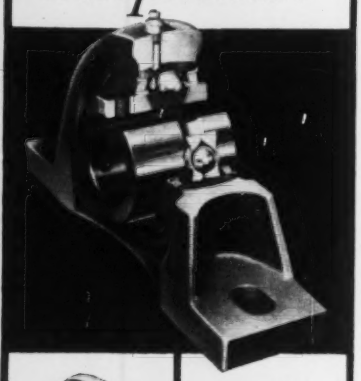

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WRITE FOR CATALOG 454

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Bargain Basement Defense?

SIR—From your article on "How to Live Through a Nuclear War" (ENR July 16, p. 27) it would appear that the bureaucrats are at their wits' end to know whether we should build highways and run or build shelters and hide or just pray. The ghosts of Hiroshima must be splitting their white kimonos.

Since confusion can't become much more utter, I might propose a bargain-basement solution.

I understand that very properly there are precious few people in this country who can push the Big Blue Button that starts all the fireworks towards Russia. Equally I would suspect that there are very few accredited Big Red Button pushers in Russia.

Now then, if through some modern miracle, such as a long piece of wire, we were to situate our Big Blue Button in the American Embassy in Moscow and the Russians were to connect up their Big Red Button in their Embassy in Washington and each nation were to delegate to its ambassador sole authority to push said button, then the only two men on earth who could start a nuclear war would automatically conclude their diplomatic careers when they did so.

They would, that is, unless one or another or both could solve the civil defense dilemma. Then there would be two men in all the world thinking furiously about the CD problem. The OCDM could go home and quit matching my federal tax money to my state tax money, and the rest of the world could exhale an uncontaminated sigh of relief.

The required piece of wire would probably cost no more than the $15 billion you suggest for more deterrent weapons, judging from the bill I just got for electrifying the henhouse, and the savings for brow knitting and head scratching would be stupendous.

Silly, irresponsible thought, isn't it? Or is it?

ROBERT M. HOOVER
Kansas City, Mo.

Are We Planning or Drifting?

SIR—No doubt many of your readers have recently read such books as the Exploding Metropolis, Cities in the Motor Age (ENR May 14, p. 210), Suburbia, and so on. Many no doubt are puzzled by the chaos in which many of our cities find themselves. Many are trying to grope their way toward some sort of control of the tidal waves that are engulfing our cities.

Many of us concerned with town and regional planning sense that the causes of the tidal waves are many and cannot be pinpointed. Likewise, the solutions are few, but they must be found. Master plans are one solution, but that is not enough. By the time we prepare a master plan of one borough or community, we find that it is only partially complete, unless there is a regional master plan. Also, by the time the master plan is completed and the city council takes action to implement it, which may take one or two years, new subdivisions, new county or state roads or intruding industrial tracts, make our master plan a shambles.

In addition to our master plan we should also take a good hard look at the hub of our metropolitan region—the metropolis itself—and reanalyze its function as a place to live in, as a place of work, viz a viz the suburbs. One should also take a look at the "dreamboats," the new, long cars with the monstrous fins, sticking out all over. One should take a good look at the railroads, the subways, the trailers that clutter the city. In New York one should wonder why the garment center is where it is, its trucks making the area a nightmare. One should wonder why the utilities, dug out frequently from the maze under our streets, are reburied in the same manner.

The engineer, concerned as never before with planning, should have a clear vision as to where we are going. Or are we drifting?

LOUIS TARNOPOLL
Tarnopoll and Associates
Emerson, N. J.

More on Bolts

SIR—With the interest that has been shown lately in the installation and use of high-strength bolts (ENR, March 26, p. 6 & 112), I offer some observations made after actual shear tests performed on a few sample bolts.

A recent problem required the use of high-strength bolts in the assembly of galvanized structural steel members. The recognized possibility of joint slippage, and subsequent actual bearing

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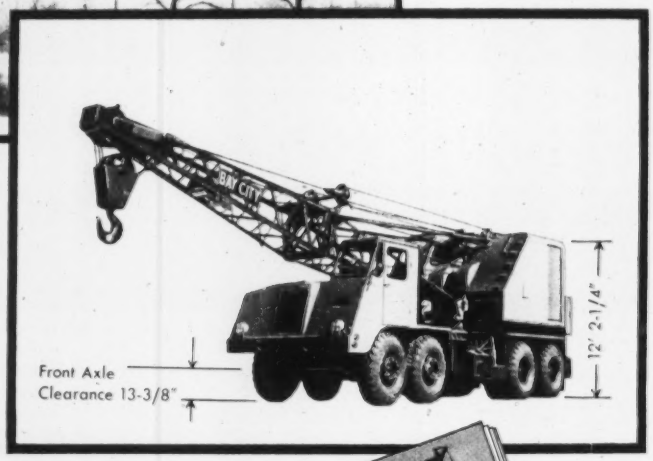

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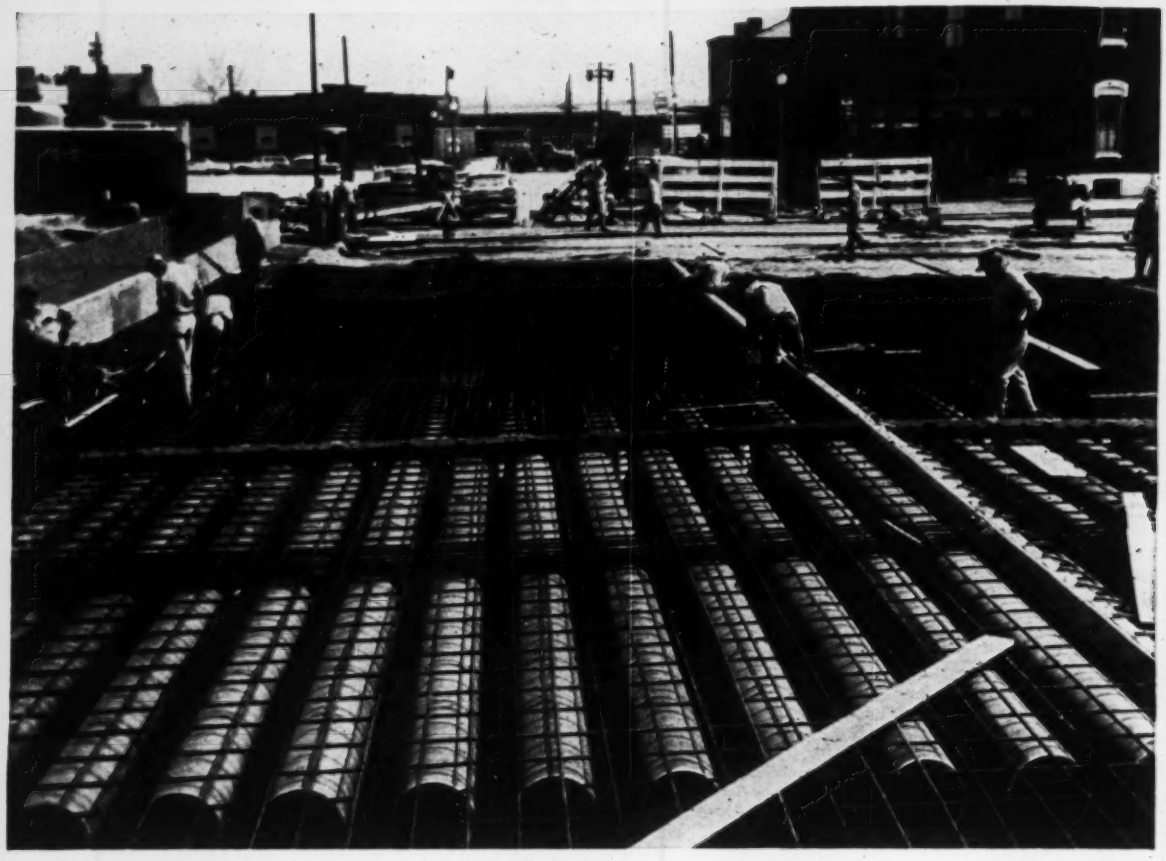
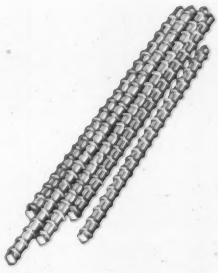


saving concrete . . . reducing weight . . . maintaining strength

with FIBRE TUBES and LACLEDE REINFORCING BARS

Millions of cubic yards of concrete are being poured into St. Louis' big new system of freeways—one of the most enterprising urban highway building programs in the country.

In this overpass section of the Mark Twain Expressway between downtown St. Louis and northwest suburbs, concrete and weight are both being saved without sacrifice of strength. 15¾"-diameter fibre tubes, inclosed in a grillwork of Laclede Multi-Rib Round Reinforcing Bars, form the core of the 24½"-thick deck. While volume and mass are substantially reduced, the Laclede-reinforced deck maintains full load-bearing capacity.



MISSOURI HIGHWAY DEPARTMENT
Project No. I-70-5(23)242
Mark Twain Expressway, St. Louis Ave. Bridge
Contractor: Fred Weber Contractor, Inc.

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with advanced big-plant features

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- **Dyna-Mix Pugmill** for faster mixing, more uniform coating . . . long life, easy maintenance.
- **Quick, Easy Erection** with three-unit design: screen and bin section; weigh-hopper and pugmill section; base section. Tapered pins guide sections into place . . . automatically align all bolt holes.
- **3⅓ Deck Vibrating Screen,** with 40 sq. ft. of area, gives top capacity for each plant and for the full range of asphalt mixes . . . integral part of bin section for easier erection. Four bins are standard—not extra.
- **Optional Hydraulic Controls** for easier operation . . . relieve operator of manual exertion; easily converted in the field.
- **Hydraulically Operated Pugmill Discharge Gate** provides instant discharge of mix . . . eliminates segregation. No time wasted between batches.
- **Other Advantages Include:** easier maintenance; complete line of accessories, including fines system; combined overflow chutes; scavenger dust system.

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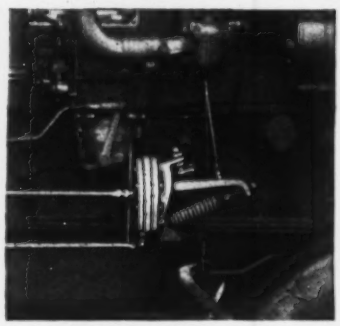

Automatic air control is a feature of Schramm Compressors. The patented Schramm Pneumastat controls speed of each unit without operator manipulation. Engine operates from idle to full speed according to air demand.

contact of the bolts and the hole surface areas, led to consideration of the value of the bolts in shear, instead of the customary tensioning with its attendant clamping force.

Bolts ⅝ in. in diameter were tested in single and double shear, using ½-in. by 2-in. steel test pieces drilled with ¹¹⁄₁₆ in. dia holes (the thickness and hole size were identical with the dimensions of the galvanized structural members of the design). The bolts were then loaded in shear by applying tension to the bolted test pieces. Only the failure load values were recorded. Bearing was permitted only on the unthreaded portion of the bolt shank. New holes were used for each test.

The bolts tested in single shear failed at an average load of 26,900 lb, those in double shear at 54,100 lb. The stress values at failure were very close, at from 87,600 to 88,100 psi on the bolt-shank cross section.

Some deformation was observed at the hole edges in the form of elongation of the hole diameters in the direction of loading. It was evident that some flexural stresses were present in the bolts. Examination of the sheared bolts, however, indicated a reasonably uniform shear failure.

Observation of the test results, and subsequent evaluation, led to adoption of an allowable working shear stress of 36,000 psi for design, based on single shear of the unthreaded bolt shank, with installation tension only sufficient to keep the nuts tight. (In subsequent design, it was found that bearing stresses on the structural members, and not bolt shear, became the limiting factor in design with these bolts.)

It is interesting to note that high-strength steel bolts may possess greater potential than heretofore proclaimed.

R. C. ADLER
Structural Engineer
Commonwealth Associates, Inc.
Jackson, Mich.

Steel Work

SIR—I have read with interest "Erecting Steel From the Bottom Up" (ENR May 14, p. 35). But the idea of using a stiffleg derrick on top of an adjoining structure to erect another structure alongside is not new. At least it is not new to The Belmont Iron Works.

In 1957, The Belmont Iron Works erected the Edison Steam Plant for the Philadelphia Electric Co. in Philadelphia using a guy derrick to erect the main structural steel. After this, we placed a stiffleg derrick on top of the existing Edison Building to erect a stack enclosure tower, reaching to a height of 303 ft from the street level.

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Vice President
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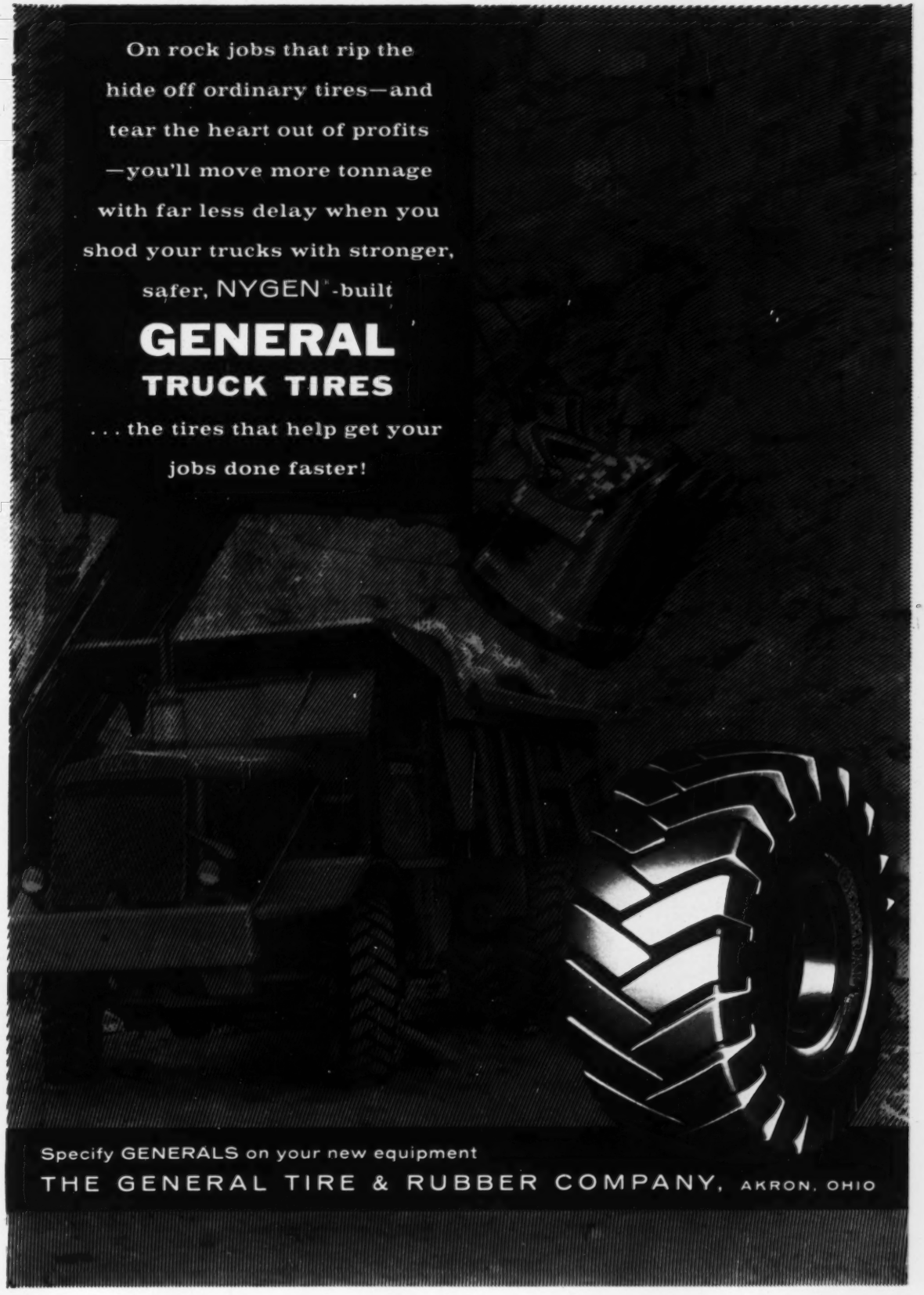
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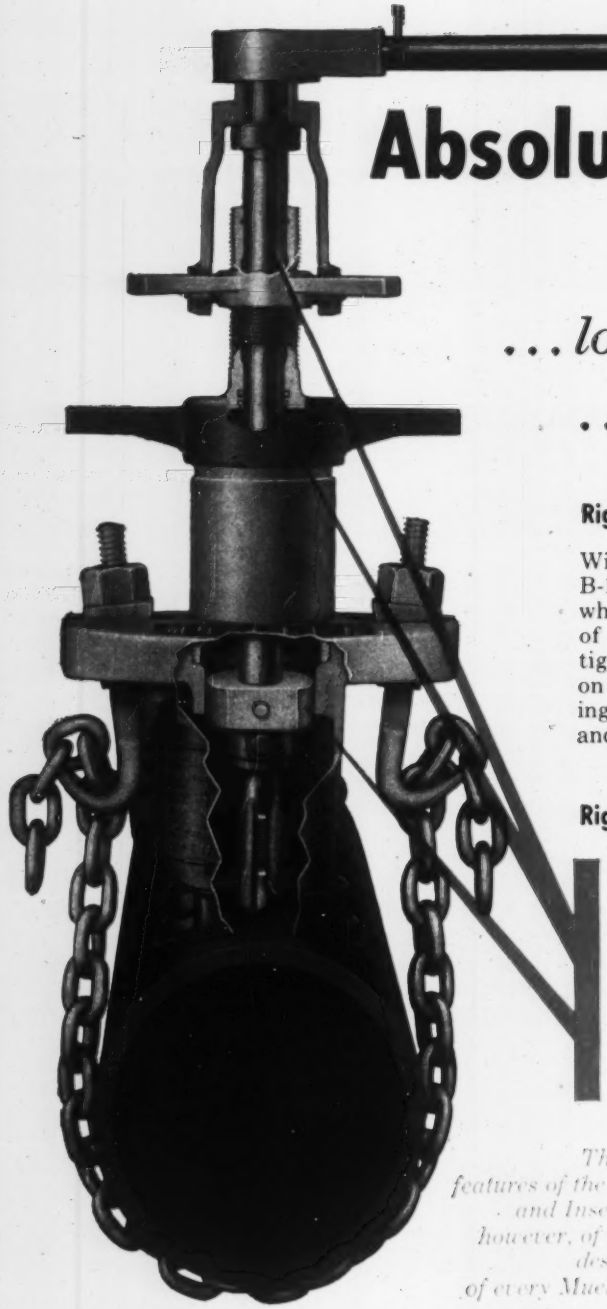

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Three widely spaced boring bar bearings, two in the feed sleeve and one at extreme bottom of boring bar, assure perfect boring bar alignment. Molded nylon lower bearing supports drill when it first contacts the main. Pipe curvature cannot deflect drill—tools give longer effective life. These three boring bar bearings guarantee perfect centering of tool and stop, assuring a pressure-tight connection.

These are only a few of the many advanced features of the new Mueller B-100 Drilling, Tapping and Inserting Machine. They are typical, however, of the attention to detail in research, design and engineering that become a part of every Mueller product used by the water industry.

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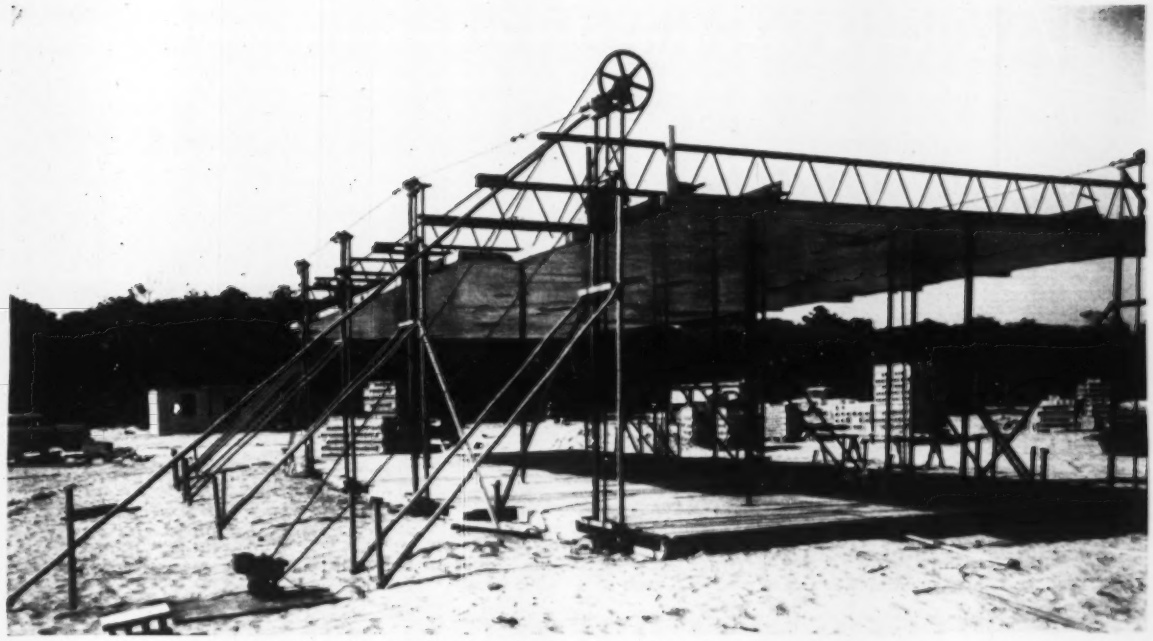

TEN JACKS, 5 on either side, raise 15-ton roof slab 1½" per minute. Steel joists hold slab rigid. Construction Service Co., Isle of Palms, S.C., contractor.

Homebuilder raises the roof; lowers his costs

BY POURING the roof slab on top of the cast-in-place floor slab, then jacking it up to erect the exterior walls, this builder reduces the cost of its inexpensive South Carolina vacation bungalows by $1,200, or nearly 30%.

The forms are 8" deep. Truck mixers first pour the 4" floor slab. After this slab is cured, a plastic sheet is laid, and another 4" of concrete poured into the same forms for the roof slab.

When cured, the 15-ton, 23' x 32' roof slab is raised 1½" per minute to a height of 9' by screw jacks. A 2½ hp gasoline engine, on each side, turns a chain and sprocket driving a horizontal shaft at the top of each set of jacks. This raises the jacks by worm gears. 8" concrete block exterior and partition walls are then built, the roof is lowered into place, covered, and the job is done. Total time: 2 weeks.

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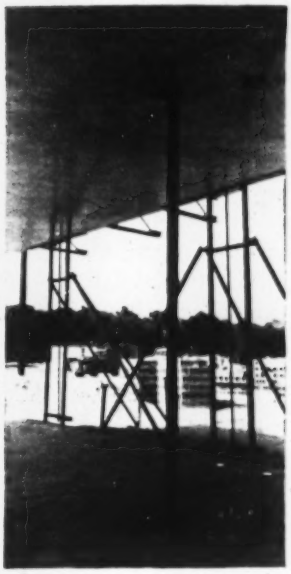
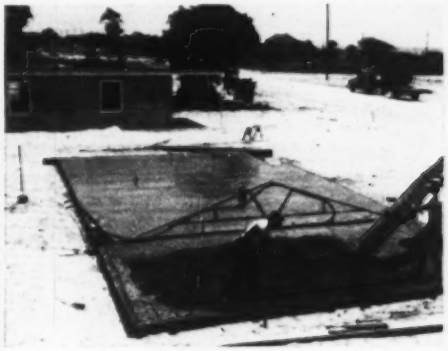


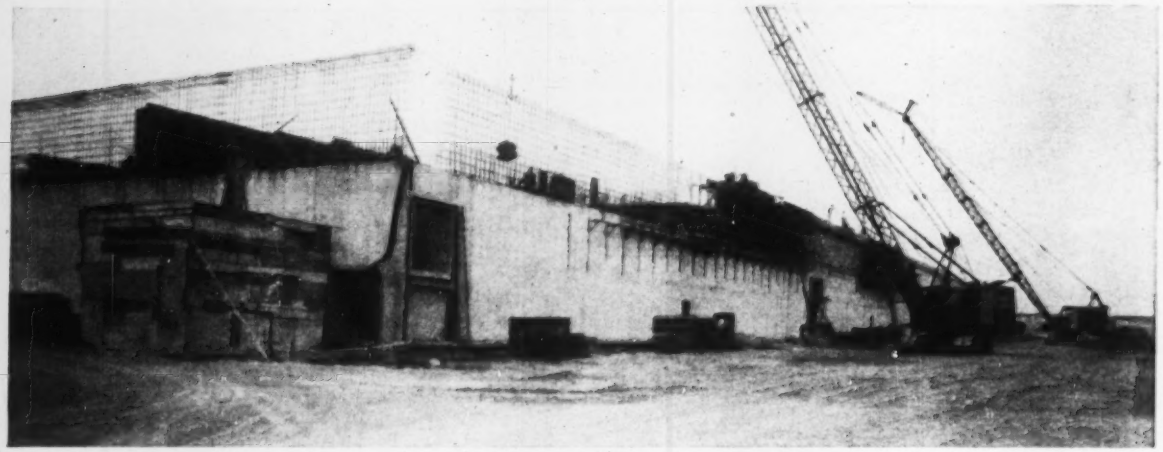


SECOND POUR: Roof slab is poured on top of cured floor slab. Job-built electric vibrating screed is used to strike off and compact slab. Floor slab is reinforced with 6 x 6 —10/10 welded wire fabric, roof slab with 3 x 8—3/8 wire.

←

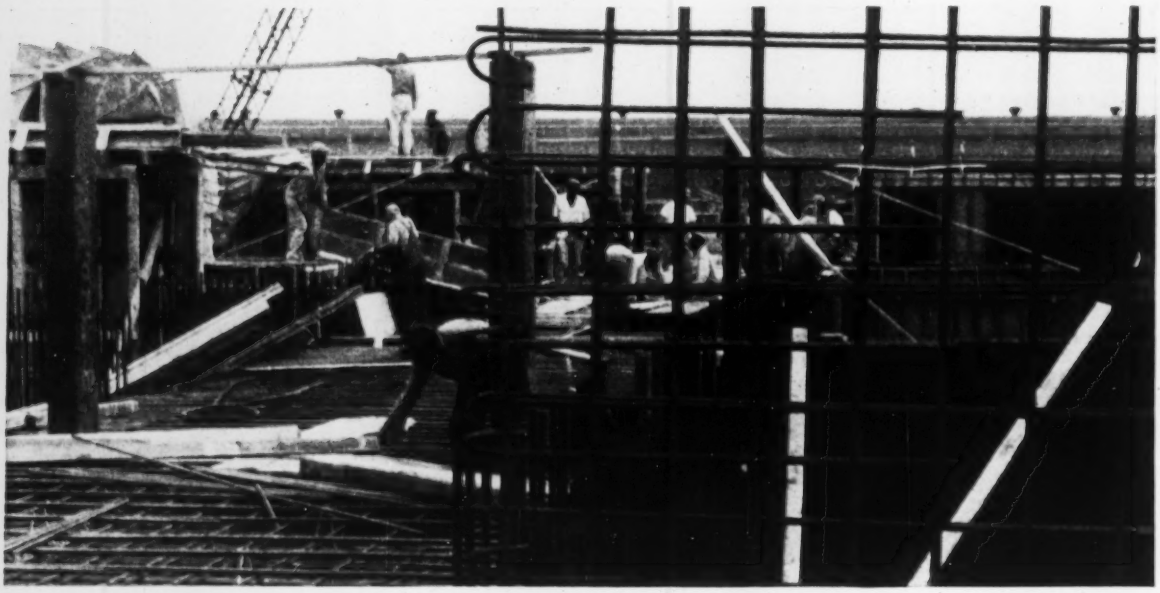
ONE DAY TO GO: Exterior and partition walls are built in single day. Temporary posts are placed under roof slab as safety measure. Note high finish on ceiling, another benefit of pouring concrete over plastic film.

FOR WORLD'S LARGEST FILTRATION PLANT...



This 960 m.g.d. water filtration plant—the world's largest—is rapidly going up on Chicago's lake front. Contractor for filtered water reservoir: Herlihy Mid-Continent Co. Contractor for east and west half of filter substructure: Gust K. Newberg Construction Co. Architecture and engineering: The City of Chicago.

RE-BARS FROM RYERSON—14,000 TONS



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ENGINEERING NEWS-RECORD

Vol. 163, No. 6 August 6, 1959

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THE CONSTRUCTION WEEK

FEWER FAILURES . . . BUT—Sharp boosts in contract awards this year are cutting the number of contractor failures. First half failures among construction contractors dropped to 1,042, 8% below the same period of last year. Business was best for general building contractors and subs. But heavy construction companies other than building failed at a rate 37% over 1958's first half.

NOOKS FOR THE NIKE—The Defense Department has slated these nine bases for Nike-Hercules installations: Barksdale Air Force Base, Shreveport, La.; Dyess AFB, Abilene, Tex.; Bergstrom AFB, Austin, Tex.; Walker AFB, Roswell, N. Mex.; Offutt AFB, Omaha, Neb.; Schilling AFB, Salina, Kan.; Robbins AFB, Macon, Ga.; Lincoln AFB, Lincoln, Neb.; and Turner AFB, Albany, Ga. Each base will get two installations. Six other sites have yet to be announced. The program now calls for 30 installations at 15 sites after being cut back from 50 installations at 25 sites.

EMPIRE STATE JOINS THE CROWD—New York is the latest state to react to uncertainty over federal funds for highways. The highway department postponed for 30 days a letting of $36 million of highway contracts scheduled for this week. It also postponed indefinitely a letting scheduled for August 27. (See page 25 for latest Congressional action on financing.)

CONTRACTORS CAN'T LOSE—Contractors in Florida's Dade and South Broward counties continue to benefit from an 18-month-long price war in ready-mix concrete. Latest reduction announced by Maule Industries, the area's largest concrete producer, hauls the price down to $11.76 per cu yd from $12.32. Other firms are expected to follow suit.

LOW CEILING—It is now against the law in California to erect or to add to the height of any structure more than 500 ft above ground level without a permit from the California Aeronautics Commission.

FASTER AND CHEAPER—Philadelphia says it pays: Instead of constructing new housing units, remodel old buildings. The city recently experimented on an old run-down building, which was rebuilt for lease. Unit cost for land, building and rehabilitation: $9,500. Unit cost of new public row-housing: $17,291. Philadelphia will now remodel another 224 such units.

SPOIL SHOULD BE PAY DIRT—The General Accounting Office thinks too much federal dirt is going for free. "Dredging contractors frequently sell spoil to private and municipal interests," noted GAO in a report to Congress. "There is no attempt by the Corps [of Engineers] to participate in the spoil sales revenues."

HIGH RIVER STAGE 433, BONE-DRY SUBGRADE 403. 30′ OF WATER PERFECTLY CONTROLLED BY A MORETRENCH WELLPOINT SYSTEM

Fruin-Colnon Contracting Co. made record time in excavating this deep substructure for Unit #3, the new 200,000 KW turbine generator and boiler unit of the Meredosia, Illinois,power station for the Central Illinois Public Service Company.

Material was medium to coarse sand, and gravel. During high flood stage of the Illinois River, Moretrench Wellpoints pumped 7500 GPM to keep the subgrade dry.

For Moretrench this is a return engagement. In 1947-48 we predrained the foundations for Units #1 and #2.

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WASHINGTON OBSERVER

- **Labor Day is deadline for major bills**
- **But public works will wait 'til next year**
- **Hospital money to flow at last year's rates**
- **New routes to Alaska?**

● **Congress has only three to four weeks left—with major construction legislation still to handle.**

Democratic leaders want to adjourn before Labor Day, which means that the pressure is building up, promising one of those end-of-session logjams when last-minute compromises are pulled out of the hat to get needed legislation passed.

Labor legislation will be in the logjam, with tough decisions up on secondary boycotts, building trades amendments, and the like.

The highway construction program (see page 25) isn't going to be settled until the last days, from all appearances.

Housing legislation, says Senate Leader Lyndon Johnson (D., Tex.), will be an omnibus bill covering urban renewal and other provisions "similar in scope and quality" to the law President Eisenhower vetoed.

—

● **The $657-million public works authorization bill will be held over until next year.** The House approved its version, but the Senate committee isn't going to vote out its version until next year.

The Senate group wants to add some 20 projects over and above the House list. Seventeen of them haven't been referred to Congress yet; three have been submitted since the House acted.

The House version squares with the Administration's requests. Hence, as of now, there's no indication of a conflict on projects as there has been in the past when President Eisenhower vetoed big bills.

Biggest ingredient in the public works package is $525 million of new authority for river basins that otherwise won't be eligible for new appropriations next year. Basins involved: Lower Cumberland, Columbia, Missouri, Arkansas, Los Angeles, White, Central and Southern Florida.

—

● **Federal grants for hospital construction will continue at the same rate as last year,** despite Administration efforts to cut them back. The Administration asked only $100 million in matching funds to be awarded the states, but Congress increased it to $185 million, the same as last year. A veto is unlikely.

What projects will get the go-ahead depends on priorities assigned by the states. But you can be sure the money will all be spent.

—

● **First steps toward new land transport connections with Alaska** have been taken. The Alaska Highway Commission, a creature of Congress under the chairmanship of Sen. Warren G. Magnuson (D., Wash.), has hired Battelle Memorial Institute, Cleveland to report on economic feasibility of new direct highway or railroad connections between the Pacific Northwest and the new state.

A move for early paving of the Alcan Highway is dead. Sen. Richard Neuberger (D., Ore.) has a bill proposing $66 million as the U. S. share for Alcan improvement between now and fiscal 1966. But the measure will be put on the shelf, at least until 1961. By then the Battelle report will be finished and Congress can enact some legislation to serve as a sound basis for negotiations with Canada, which will be expected to participate in the financing of any such new land communications.

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Enough Steel for Three Months

"Structural steel fabricators throughout the country have enough structural steel shapes on hand to continue operations for three months or more despite the steel strike."

That's the finding of a nationwide telegraphic survey of fabricators conducted by the American Institute of Steel Construction. The AISC represents more than 300 structural steel fabricators.

Eight of every ten fabricators polled report their steel stocks adequate to maintain the current high level of shipments for three months or more. Some report they can run as long as six months.

This survey contradicts earlier estimates by industry spokesmen that the construction industry could hold out for only two to four weeks (ENR July 2, p. 74).

The 20% of the fabricators who are running short include a few now shut down because the striking United Steelworkers of America represents their employees. Others have steel supplies adequate to sustain operations for only another month or two.

If the strike lasts longer than three months, some fabricators will have to curtail operations, AISC says.

Steel users have learned a lesson from the bitter experience of the 1956 steel strike, says L. Abbett Post, AISC executive vice president. "At that time they were caught woefully short, and since there was a shortage of steel that year, there was little they could have done in anticipation of a strike anyway.

"This year, however, fabricators took no chances and stockpiled steel months ahead in anticipation of a strike."

This statement is borne out by June's shipment of 365,434 tons of fabricated structural steel—highest in 20 months.

The two-week extension of the steel labor contract made it possible for a great number of steel users to get additional deliveries of promised shipments.

Virtually all the fabricating companies responding to the survey report they are accepting new orders for delivery in a normal length of time—regardless of the strike. This is particularly true of those orders requiring relatively small tonnages of steel—up to several hundred tons.

Larger orders are subject to strike developments. These can probably be filled on a tonnage basis, but certain sizes may run short. Work is already slowed.

About one-third of the fabricators report they can handle large and medium-sized jobs right now with virtually normal delivery. The AISC survey indicates further that if the strike in the basic steel industry continues beyond Labor Day, layoffs of men in fabricating plants would not begin on a large scale for two months or more thereafter.

Does it then follow that contractors are faring equally well?

Not quite.

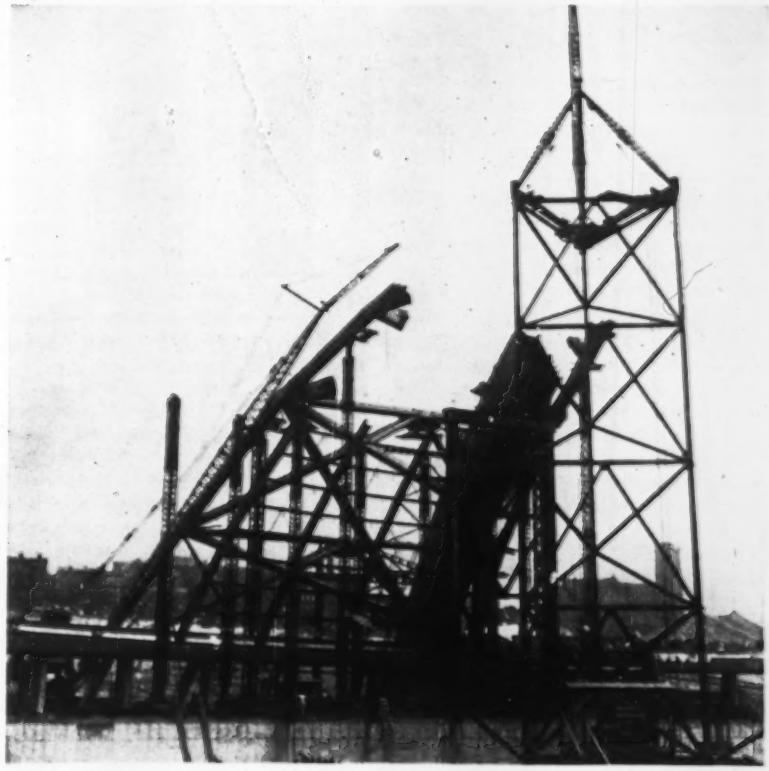
Few construction jobs have been affected by the steel strike thus far, since contractors also placed orders way ahead of time. What's obstructing the progress of some construction jobs, however, is want of the proverbial nail.

Some project engineers are finding they've got all their major material—but that some one neglected to order the one part needed to finish the job.

The $20-million, domed Pittsburgh Civic Auditorium, now under construction, is in an even worse situation. The fabricating shop for the job is located at Ambridge, Pa., just up the river from the site. Since steel was so readily available, it was floated down the river by barge. The fabricator, American Bridge Division, U. S. Steel Corp., was turning out steel for the movable roof and its supports as needed to meet the erection schedule. All available material was delivered just before the strike, but it was not enough to finish the roof, let alone the curved box girder and tie back that holds it up.

Last week, steel erectors went on half force at the site. And in another two weeks all erectable steel will have been put up. Some material will be left over, but this cannot be erected because of missing parts.

The AISC survey also revealed that the regional supply situation is fairly uniform—supplies should last three to four months. But local shortages in



PITTSBURGH'S $20-million domed auditorium will be among the first major construction jobs to be shut down for lack of steel.

. . . Steel stockpiles ease threat of shutdowns

various types of steel may flare up.

If the strike continues, some builders may try to fill the gap with substitutes. Wide-flange beams will be among the first to be out of supply, since the four companies producing them—Bethlehem, American Bridge, Kaiser and Inland—are all struck.

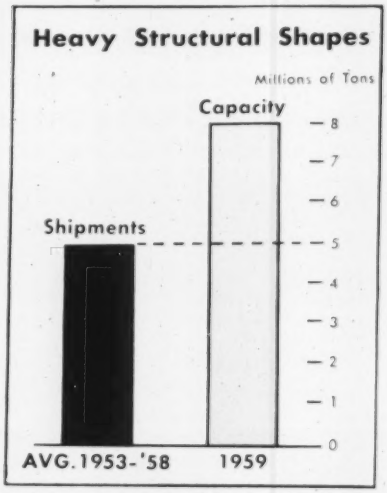
American Standard beams and plates are expected to be available longer; several steel companies manufacturing these shapes are still operating. (Their employees are represented by other unions.) Some structures may therefore be redesigned so that other steel shapes can be substituted for WF beams.

Foreign steel will offer some relief from any possible shortage. The trend toward importing foreign steel, which was gaining momentum anyway in recent months, is now accelerating. Imports of steel from abroad are at an all-time high.

Europeans have already won a number of large steel orders here. The Power Authority of the State of New York, for example, recently gave an order for 900 tons of structural steel to an Italian company.

Foreign steel accounted for 18% of reinforcing bars available in the U. S. last year. Thirty percent of the nail market went to imports last year, compared with 20% in 1957. The Japanese have practically cornered the market for prestressing wire in the Southeast. And the figures for steel imports this year are expected to be higher.

In the heavy structural shapes, however, the amount imported is still slight, compared to the over-all market.



NEW MILL CAPACITY assures fast filling of backlog after strike ends.

Many builders have been reluctant to work with foreign structural steel because of uncertainty about quality and physical properties. But as the steel strike wears on, the prospect of importing structural shapes from abroad becomes more tantalizing.

Some of the buildings that were designed in the months preceding the strike were prepared with reinforced concrete alternates.

But buildings now on the drawing board may not be helped by alternate reinforced concrete designs. Should the strike still be on by the time they get into the construction stage, steel products used in concrete construction may also be out of stock.

Moreover, fabricators are encouraging future orders despite the strike, reports AISC. They believe that the tremendous expansion in rolling mill capacity in the steel industry will enable them rapidly to fill any backlogs promptly upon settlement by industry and labor.

The average annual steel capacity of U. S. mills prior to 1958 was 5 million tons. Extensive expansion programs have since increased annual productive capacity to 8 million tons.

The steel strike is now in its fourth week, with no sign of a settlement in view.

What Happened in Moscow?

A story on the American National Exhibition in ENR June 25, p. 24, carried the headline, "U. S. Gives Moscow Something to Talk About."

Last week, the situation was reversed. Moscow gave the U. S. something to talk about:

The floor in the gold anodized aluminum dome used for science exhibits was dusting so badly that the exhibits were literally being obscured. The floor had to be resurfaced with asphalt as an emergency measure.

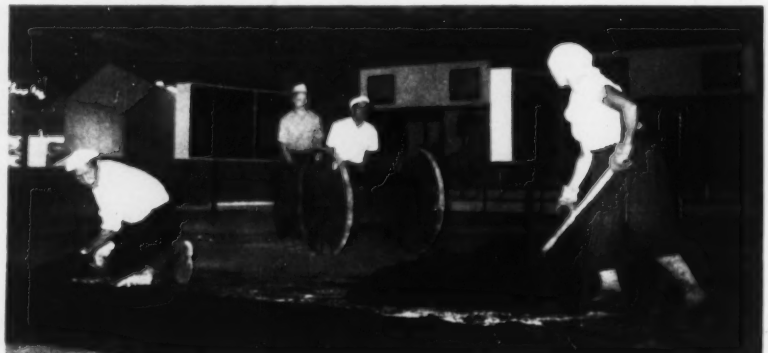
Welton Becket and Associates, Los Angeles, was the architect for the 200-ft-dia dome, and Reynolds-Eeal, New York City, was the general contractor. But the dome floor was put in by the Russians with local materials and labor.

Kent Attridge, coordinating architect for Becket, reports: "From the beginning we were opposed to Russian concrete. No testing facilities were available. There was no way to test the Russian cement, which is not always a good grade. The Russians generally use river sand unwashed. It is filled with clay and other deleterious material.

"Soviet practice is to mix the concrete at a plant and then load it with water on a truck for delivery to the site; whereas U. S. practice is to add water to a truck mixer just before discharging.

"We had recommended that both aggregates and cement be imported from Germany or Sweden or that a washing plant be set up for the Russian aggregate. But the cost of shipping from Germany or Sweden was greater than the cost of cement itself. So Mr. McClellan (the fair's general manager) contracted with the Russians for the job. Since the Russians are to get the building when the exhibition is over, we assumed they would do a good job."

In a similar vein, John Keely Clifford, vice president, Reynolds-Eeal, says, "We had recommended Italian cement and Reynolds-Eeal workers. As an alternate, we suggested Polish subcontractors. But because of the limited budget and the high cost of importing materials and labor and the fact that the Russians were anxious to do the job and promised a top quality floor, Mr. McClellan gave them the contract."



Russians resurface dusting floor of U. S. exhibit building with asphalt.

Will Interstate Be Stretched Out?

- **That's what House Ways and Means Committee recommended to Congress last week.**
- **But growing protests in and out of Congress indicate the question is far from settled.**

Drastic cutbacks, four-year stretch-out and deficit financing—those are the ingredients the House Ways and Means Committee put into its solution last week for the highway financing problem.

The reaction was an immediate storm of protest.

And in view of the growing dissatisfaction with this first attempt by Congress to come up with additional roadbuilding funds, it seems likely that adjustments will be made.

If the House should accept the Ways and Means plan, observers expect the Senate to legislate its own solution to the problem. And speculation grows that a hike in gasoline taxes may still be the answer to the matter.

The committee recommendations came after three days of public hearings and an equal number of executive sessions. Here's what was recommended:

Issue $1 billion in revenue bonds between now and June 30, 1961, to be paid off by 1966; and, beginning July 1, 1961, earmark 2¢ of the present 10¢ excise tax on new automobiles for roadbuilding until July 1, 1965.

As a companion to the financing proposal, the committee stipulated that the Interstate Highway System construction program be slowed down. It wants 1961 apportionments chopped from the currently authorized $2.5 billion to $600 million; 1962's authorization of $2.2 billion cut to $1.4 billion; and the apportionments between 1962-69 trimmed back by some $2.8 billion under current authorizations.

To accommodate this slowdown, the program would be extended from its present 1972 completion date to 1976.

Opposition was voiced quickly.

Top government officials say privately that the measure, as it stands, would almost surely be vetoed by the President. State highway officials, who will feel the immediate brunt of the measure, have called a hurried meeting in Chicago to map out strategy plans.

Rep. George H. Fallon (D., Md.) chairman of the House Public Works Subcommittee on Roads, and an advocate of further increases in the roadbuilding program, is openly critical of the committee's action. "This proposal," he says, "would completely destroy the highway program as established in the Act of 1956, create chaotic conditions in state highway departments, and have a disastrous effect on industry."

Maj. Gen. Louis W. Prentiss, U.S.A. (Ret.), of the American Road Builders' Association, blasts the measure as an "exorbitantly expensive solution of the Highway Trust Fund problem." It means, he says, "delaying the benefits which the country will enjoy from the completed Interstate System."

House Ways and Means Committee chairman Wilbur Mills (D., Ark.) defends his committee's action. "This action by the committee," he says, "results from the feeling on the part of the committee that the American people would prefer to spread out the construction of and payment for the Interstate Highway System over four additional years, to an increase of 50% in the federal tax on gasoline and other motor fuels, as proposed by the President in order to permit the construction of the highway system within the time originally contemplated.

"The proposal agreed to by the committee seemed to the majority of the committee to be a satisfactory solution to the problem of financing the program, especially since not only the financing of the program but the cost of the program will be reviewed by the Congress following receipt of the studies in January, 1961, on these subjects which were directed to be made by the Congress."

Highway Administrator Bertram D. Tallamy says he "doesn't agree" with the Congressional proposal. While Mr. Tallamy "doesn't want to be critical of the committee action because they have worked hard at the problem," he is hoping for a better solution on finances before final Congressional action comes.

The states are in a dilemma over the matter. Administrator Tallamy says he will advise states to go easy on contracting "if the state cannot finance projects on its own and wait for some time for Bureau of Public Roads payments." Officially, the bureau has not issued any order to the states.

Some 16 states, however, have already slapped a slowdown on the construction on their own. Advertising for bids has been suspended by Maryland, Ohio, Virginia, Georgia, Tennessee, California, Colorado, New Mexico, Utah and Wyoming.

Awards are being held up by Mississippi, Florida and Indiana. Washington and Oregon have canceled scheduled bid openings. And Missouri has suspended scheduled lettings.

N.C. Retires 77 From Road Jobs

William H. Rogers has resigned as North Carolina's Chief Highway Engineer and the reorganized State Highway Commission is retiring a total of 77 other persons between now and October.

"Politics" has been charged, but the commission insists everything is normal.

The size of the commission was reduced from 14 to seven members in 1957 at the insistence of Gov. Luther H. Hodges, ostensibly to remove it from politics, but critics now charge that it has become even more of a political body. A bill to restore the commission to 14 members, one representing each of the state's 14 highway divisions, was defeated during the recent session of the legislature, with the Hodges administration leading the opposition.

Among the 77 to be retired are more than a dozen men in key positions. Five of the 14 division engineers have reached the age of 65 or older and are being retired; their replacements already have been found.

Also being retired are several road maintenance supervisors, and others.

W. F. Babcock, who left the engineering faculty of North Carolina State College to take over as director of the reorganized commission, said it is not unusual for 77 persons to be retiring from the department in a single year; they all have reached retirement age. He concedes there is more than a usual percentage of upper echelon personnel among the 77 leaving this year. One reason, he claims, is that a number of men past retirement age were held over from the 1957 reorganization of the department until their positions could be filled.

The highway commission adopted a retirement policy last February calling for retirement of all persons who attained the age of 65, unless their services were really indispensable.

Why School Frame Flopped

An unanticipated lateral force toppled the steel arches at Beaver, Pa., last month, American Bridge investigators report.

American Bridge was erecting the 204-ft span, two-hinged, tied arches for the Beaver Area Senior High School gymnasium when the ribs suddenly fell to one side (ENR July 23, p. 25). Five men were injured. They had been connecting a knee brace to an arch rib at the time.

Four of five planned arches had been set in place and final bolting of purlins and knee bracing had been practically completed. Below the crown of an arch a beam spanned between opposite sides of the rib; purlins were knee-braced to this beam, part of a system for supporting a movable partition at the center.

Investigation of the collapse reveals that "an externally applied force in an effort by the workmen to connect one of the 12 transverse knee braces between the purlins and the vertical beneath the center girder, the third erected, was apparently of sufficient magnitude to cause slippage of the cable clamp to the temporary guys. . . .

"The erected portion of the structure was considered very sturdy by the experienced supervisor on the job, but guys had been installed as a protection against high wind. They were not, however, calculated to resist a force of the magnitude apparently applied by the workmen.

"After the steelwork is erected, brick shear walls, the roof purlins and decking are designed to provide adequate lateral stability."

Military Building Bill Passed

Military projects to the value of $1.225 billion were approved for construction starts in fiscal 1960 under the final compromise version of the authorization bill that the House and Senate accepted last week.

This bill authorizes military construction that will be financed by a bill for the appropriation of $1.6 billion that will come before Congress in a few weeks. The additional sum will be used for projects that were previously authorized, but not financed. Presidential approval of both bills seems certain.

The total is $111 million less than the Defense Department requested six months ago. Major savings were made possible by the Defense Secretary's revised plan for continental air defense, announced in June. This revision cut Army and Air Force schedules for Nike and Bomarc installations by more than $55 million.

In its final form, the bill authorized $188 million for new Army construction, $177 million for the Navy and $797 million for the Air Force. These totals for the active forces show decreases from original requests of $43 million, $18 million, and $75 million respectively.

The remainder of the authorized grand total consists of $57 million for facilities of the reserve forces, plus a few millions of additional authority for going projects that are over-running original estimates.

About 80% of the authorized construction will be built in the United States. The four largest of the unclassified projects specifically named are $20-$30 million jobs: two by the Air Force at Richard Bong and Andrews Air Force Bases in Wisconsin and Maryland, and two by the Navy in California—for the Air Station at LeMoore and the missile range at Point Mugu.

The bill as passed also includes $10 million for NORAD, the underground installation of the North American Air Defense Command at Colorado Springs.

Bomarc and Nike locations authorized in the bill won't be finally and firmly fixed until Defense Secretary Neil McElroy makes a review report to Congress.

Mr. McElroy's recent revision of the air defense plan already has produced great changes.

Two Bomarc projects have been canceled in Vermont and Wisconsin, one advertised and the other under construction. Similarly, except for certain key bases of the Strategic Air Command, Nike-Hercules installations planned for the central and southern United States have been dropped.

The new bill extends the Capehart housing program that expired recently and died again when the President vetoed the omnibus housing measure. The military bill permits starting of 20,000 additional units this year. It also empowers the Defense Secretary to spend money for title insurance when mortgage investors demand this protection—a factor that has delayed mortgage closing for several projects.

After the Failure

Town requires architect or engineer on the job

Oyster Bay, N. Y., has modified its building code to require construction supervision by a professional engineer or registered architect. It also added wind-load requirements for all buildings and limited slenderness of unbraced columns.

The code changes are a sequel to the collapse of a 25,000-sq-ft, one-story industrial building that was under construction in Westbury—an area in Oyster Bay's jurisdiction (ENR May 14, p. 29). The amendments, in effect, follow the recommendations in ENR editorials ("Design Against Sidesway," May 21, p. 128, and "Inspection Can Avert Failures," June 18, p. 312).

Many communities require architect or engineer supervision of field work, but they also permit supervision by an experienced superintendent of the contractor as an alternative. Many communities also do not extend wind-lod design to low buildings.

Specifically, the Oyster Bay code now has these items added to it:

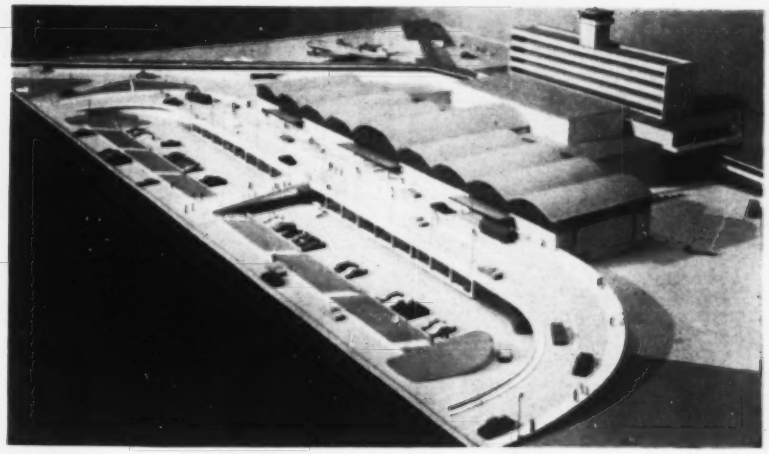
- Construction supervision by a professional engineer or registered architect is required on any building over 10,000 sq ft. The building permit will be revoked and construction stopped if the architect or engineer for any reason ceases supervising the work.
- A certificate will be required of the architect or engineer stating that the building has been put up in accordance with approved plans on file with the building department before a certificate of occupancy is issued.
- All buildings must be designed for a 20-psf wind load. Where the roof and floor are carried by steel framing, the entire wind load must be carried by the framing.
- Main compression members must be designed with a ratio of length to radius of gyration below 120.

Where the column top is unbraced in either direction, design length of the column must be doubled.

Air Force Will Reserve Projects for 'Small' Firms

The Strategic Air Command will grant $29.8 million worth of work to "small" construction firms under the Small Business Administration's set-aside policy. SBA defines a small firm as one that grossed $5 million or less over the past three years.

The work will involve construction, maintenance and repair projects at 44 SAC bases in the United States, Guam and Puerto Rico.



In Atlanta . . .

Thin-Shell Arches Cover Terminal

The largest single airline terminal building in the U. S. is now under construction in Atlanta. The $12-million structure is part of a $20-million program to streamline the city's airport.

Its striking feature is a 500-ft-long roof of thin-shell concrete arches above the ticket lobby. The arches have 44-ft spans and are 120 ft long. They are being cast in place, 4 in. thick, over curved wood forms.

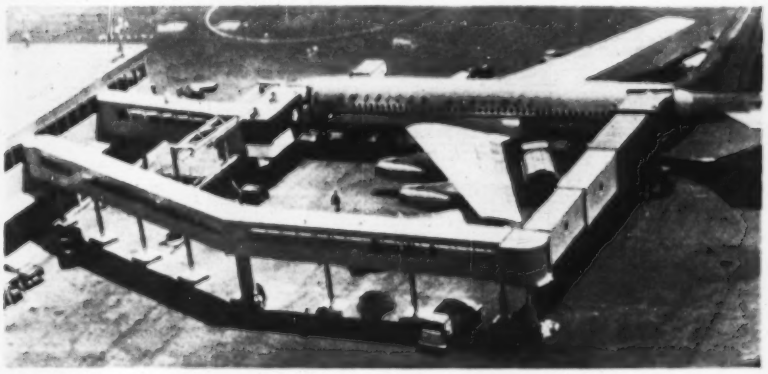
The terminal is shaped like a crab, whose front claws hold a parking lot with room for more than 1,200 cars. Six legs extend from three sides of the building as covered walkways to shelter passengers en route to the 60 airplanes spaces.

Ramps connect the split-level building with the airport's main parking lot.

A traveler can walk from ticket windows to waiting lobby to airplane without going up or down a stair. These features ease the flow of passenger traffic. (Atlanta Airport is a popular transfer spot where 50% of the traffic is interchange.)

The terminal will have terrazzo floors and interior columns covered with glazed tiles. The exterior will be off-white brick and enameled blue metal panels.

Blount Brothers Construction Co., Montgomery, Ala., is the general contractor. Robert and Company Associates, Atlanta, are the architects-engineers. Completion is scheduled for late 1960.



In San Francisco . . .

Telescoping Walks Feed the Jets

Telescoping corridors provide a covered walkway for jet passengers at San Francisco's International Airport. The telescoping portion of the corridor swings on wheels from a fixed mount. The walkway is on adjustable stilts to meet the jets' high doors. Two corridors provide separate entrances—for first-class passengers at the front of the plane, second-class passengers at the rear. The system cost $100,000. It is the first of its kind in the country.

Too Much Homework?

Consultants hit consulting by engineering professors

A committee in South Dakota will investigate what in that state is called "moonlighting"—consulting engineering done by faculty members of state colleges and universities. State Engineer Al Kemper, who heads the committee, will report to the Board of Regents in September.

That was the outcome of a meeting of the Board of Regents with representatives of the Consulting Engineers Association of South Dakota.

The association has condemned the practice of extracurricular consulting work on the part of professors as "unprofessional" and "unethical."

John Reese of Watertown, member of a consulting firm, said the practice of "moonlighting" is unfair competition to professional engineers.

The association has no objection to faculty members engaged in consulting when they are not on active teaching status, Mr. Reese said.

But Board of Regents chairman Lem Overpeck said consulting work is important in the education of faculty members and has a direct bearing on accreditation of schools.

Ohio's Tardy Contractors Heed Road Chief's Warning

Contractors who were behind schedule on state highway projects in Ohio are now "moving dirt like mad," according to E. S. Preston, the state's director of highways.

Mr. Preston sent telegrams last month to 82 contractors, advising each one to "quit dragging your feet." He warned that "your ability to prosecute the work you now have under contract must necessarily be taken into consideration when determining the amount of your prequalifications for future contracts" (ENR July 30, p. 17).

Among major projects behind schedule were sections of the northeast-south east superfreeway. The department has 501 jobs under way with more than $300 million worth of the $506-million total contract work completed, according to the director.

Ohio contracts carry no dollar penalty or bonus clauses. The contractor remains in control of the work, but has to pay state engineers if the job is prolonged beyond state-authorized dates.

A spokesman for the Ohio Contractors Association said there was no intentional delay in completing the work. He said that the lag was due to circumstances beyond the control of the contractors, such as wet weather, labor difficulties and right-of-way delays.

U.S. Streamlines Building Procedures

Starting next year, new project proposals for general-purpose buildings of the federal government will feed through a single pipeline to the Congressional mill. A bill to set up the new system has passed the House and will soon face a favorable Senate (ENR July 16, p. 146).

Faster and smoother authorizations and money appropriations are expected to result from the new setup, which replaces a patchwork of past building laws. Centralized control at both ends of the pipeline will aid this improved operation, advocates say.

At the input end, the General Services Administration will have undivided responsibility for all proposals not related to military or other special-purpose projects. At the outlet gate, the Public Works committees of the House and Senate will hold full power to authorize or reject projects, just as they did under the discarded lease-purchase program.

Consolidated control over all general-purpose buildings will prevent Congressional by-passing of GSA, and is counted upon to produce sounder selection of projects on the two bases of need and geographical distribution.

As before, the GSA administrator would have to submit a complete prospectus with each proposal, detailing estimated cost of the new building compared with costs for alternative methods of meeting space requirements.

Authorizing legislation for public buildings is a must at this session. All prior authority for spending on new federal buildings was used up in appropriation bills passed last year.

Additional spending authority would become available as House and Senate committees approved project proposals under the new legislation, assuming that it goes through as expected.

These authorizations would come too late for any appropriations this year, but they could possibly be approved in time for consideration in the President's next budget and certainly in time for action by appropriations committees in the 1960 session.

There is in existence a $500-million shelf of 20 previously approved GSA projects that the Public Works committees could take up promptly for re-authorization. Of these 20, 18 have already gone through the site-acquisition and design stages with expenditure of some $60 million out of nearly $70 million appropriated for the purpose.

In back of these ready-to-go jobs is another well-filled bin of pending projects carried over from lease-purchase days. GSA can submit quickly to the Public Works committees 100 or so proposals from a list of 200 that were under close study when the lease-purchase law expired two years ago.

It is extremely doubtful that the committees would authorize so large a number at the outset. The legislation contains a built-in brake against piling up an unwieldy backlog of authorized but inactive projects that could not be started for years.

Long-lease authority of the departments, for rental contracts up to 30 years, would be made permanent.

Not all Congressmen are satisfied with the scope of the bill as passed by the House and adopted by the Senate Public Buildings Subcommittee. Some, like Rep. Thomas F. Johnson (D., Md.), want a new federal agency to take over practically all government building construction—even including Congressional jobs like the severely criticized new Senate and House office buildings, now under the jurisdiction of the Architect of the Capitol.

But opposition to the bill is minute, if not mute. All signs point to enactment before Congress adjourns.

A Home Run for Construction?

Plans for millions of dollars worth of stadium construction came into view last week when baseball's long-awaited third major league hatched out of the talking stage.

Thus far 13 cities have expressed "strong interest" in joining the new Continental League. But to qualify, a city must have a stadium seating at least 35,000.

While many of the interested cities now have minor league parks that big, most of the stadiums are aging and are located in areas starved for parking space.

Ten of the third league candidates—Buffalo, Montreal, Atlanta, Miami, Indianapolis, Dallas-Fort Worth, San Diego, Portland and Seattle—will need new stadiums. Those proposed would seat about 50,000 and cost between $9 million and $10 million, exclusive of land. Parking requirements are figured at one space for every three seats.

The three other interested cities are New Orleans, which would expand the stadium it has, San Juan, P. R., which is already constructing a 40,000-seat structure, and New York City, where plans call for a new stadium costing between $12 million and $15 million and seating about 50,000.

Around the Country . . .

• **Expanding Friendship**—Baltimore's Department of Aviation has proposed a $2.8-million expansion for the city's Friendship International Airport next year. The principal project would be a $1.9-million extension of the terminal building to provide 10 more gate positions for airplane parking.

• **More hotel room**—Chicago's Sheraton Towers Hotel will start building a 600-room addition this month, more than doubling its present size. Architects and engineers are E. F. Quinn and R. T. Christiansen of Chicago. George A. Fuller Co. is contractor on the $8-million project.

• **Ohio River bridges**—Governors of Indiana and Kentucky have signed agreements that provide for erection of three toll-free bridges over the Ohio River. The spans will link Evansville, Ind. and Henderson, Ky.; Mauckport, Ind. and Bradenburg, Ky.; and Cannelton, Ind., and Hawesville, Ky.

• **Better sewers needed**—Up to $150 million in new sewer improvements and treatment plant construction are needed to protect New York City's beaches from pollution. The half-completed, $420-million treatment plant construction program will not be sufficient, reports the Mayor's Committee on Elimination of Sources of Marginal Pollution.

• **Toll facility work**—There is $770 million worth of tollroad, bridge and tunnel work under way in the U. S. and Canada. This is reported in the first full listing of toll facilities in the two countries, put out by the American Bridge, Tunnel & Turnpike Association, Inc.

• **Going up**—Travelers Insurance Co. of Hartford, Conn., will build a 22-story, $15-million office building in Los Angeles. George A. Fuller Co. is the general contractor; Welton Becket & Associates are architects-engineers for the project. Construction is scheduled to start in October.

Pierce Island Bridge, Portsmouth, N. H.

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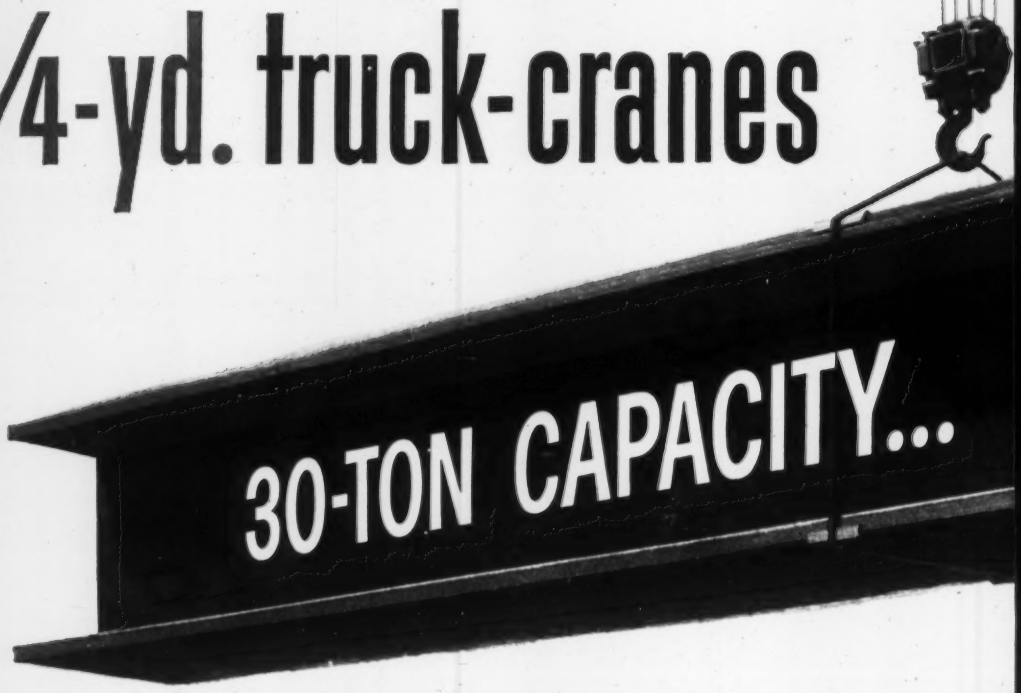

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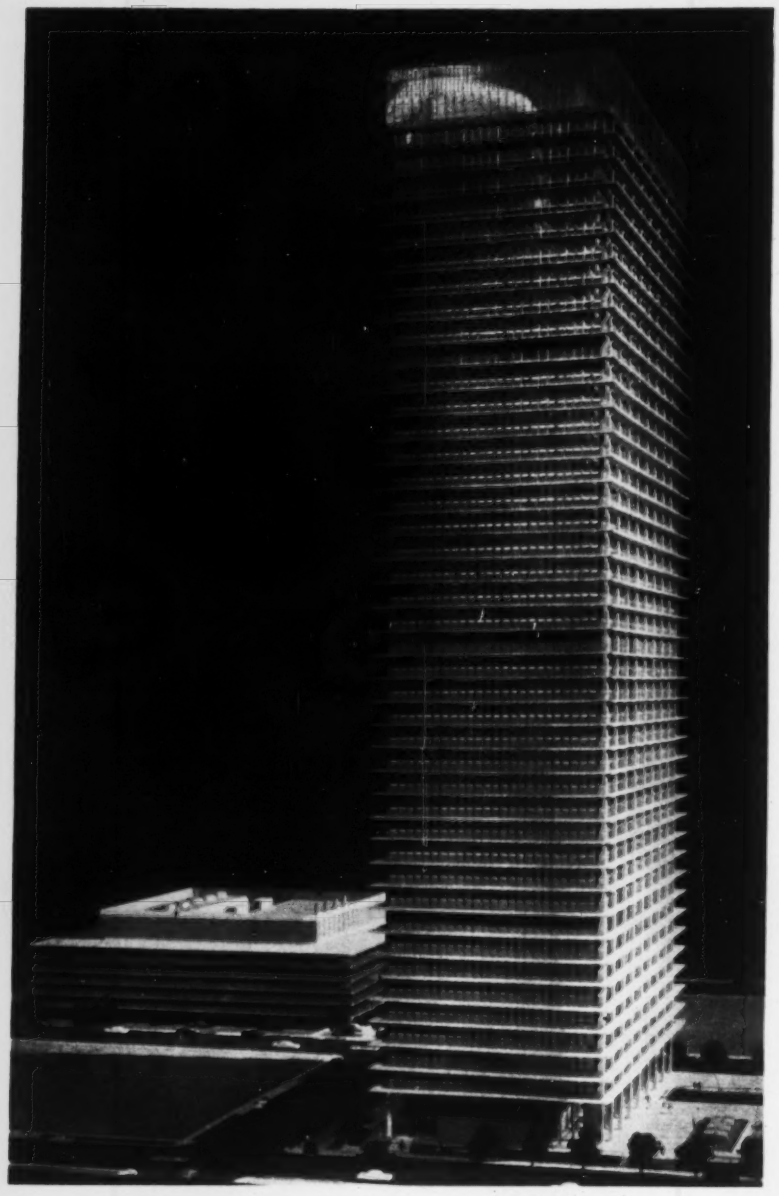

New Heights for Houston

A $32-million, 44-story structure will be Houston's newest and tallest office building. It is being built for Humble Oil and Refining Co., an affiliate of Standard Oil Co. of New Jersey.

The rectangular tower will be about 225 ft long by 115 ft wide and will contain 1 million sq ft of floor space. The building will be shielded from the sun by horizontal aluminum and porcelain-enameled louvers.

Inside the skyscraper, all service facilities, including elevators and restrooms, will be grouped in a central core. All four sides of the building will be occupied by office space.

The interior design is based on a module 4-ft 8-in. square. Each module will act as a self-contained unit with its own electrical and telephone connections and with access to air conditioning. The modular grid permits easy partitioning of offices.

The architectural model indicates plans for a landscaped plaza.

A six-story garage, to be constructed on a nearby lot, will be connected to the building by a tunnel.

Welton Becket and Associates, Los Angeles, are the architects and engineers. Final plans are expected to be completed by 1960.

Nickel Plant Ready

Manitoba complex going on line next year

International Nickel Co. of Canada, Ltd., will start production at Thompson, Manitoba, next year after more than three years of construction work at the site.

When full-scale production starts in 1961, the center will turn out 75 million pounds of nickel annually, second in the world only to the nickel center at Sudbury, Ont. It will be the first fully integrated nickel plant all in one location including mining, concentrating, smelting, and refining.

To push construction in 1957, Inco hauled thousands of tons of equipment to the mining area by tractor train over frozen muskeg during the winter freeze-up (ENR Jan. 17, 1957, p. 62). By the end of that year, a rail link was completed between the Thompson site and Canadian National Railways' Hudson Bay line.

In 1958, smelting plant construction got under way. By the end of the year, a 500-ft-high smelter chimney and 261-ft-high mine shaft head building were finished. The production shaft for the mining operation went down 2,100 ft.

This year, the company announced that Thompson would be the site of a new nickel refinery using direct electrolysis of nickel matter, an Inco-developed process that bypasses high-temperature reduction and oxidation operations.

Power for the plant will come from the Manitoba Hydro-Electric Board's plant 53 miles northeast of Thompson at Nelson River. The power plant was built through joint financing by Inco and the utility board at an estimated cost of $40 million.

Engineers Wanted; BuDocks Facing Shortage

The Navy's Bureau of Yards and Docks has begun a five-year recruitment campaign to offset the bureau's increasing country-wide shortage of qualified engineers.

The bureau is faced with a sizable turnover in engineer personnel through retirements, transfers and resignations. Within the next seven years many of its most valuable engineers will be eligible for retirement.

Trainees begin at $4,490 per year and advance to $7,510 in a minimum of 2½ years. Starting salaries are higher for engineers with master's degrees or experience or both.

Recent graduates take part in the bureau's professional development program, which includes orientation, field training and on-the-job training.

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FOR

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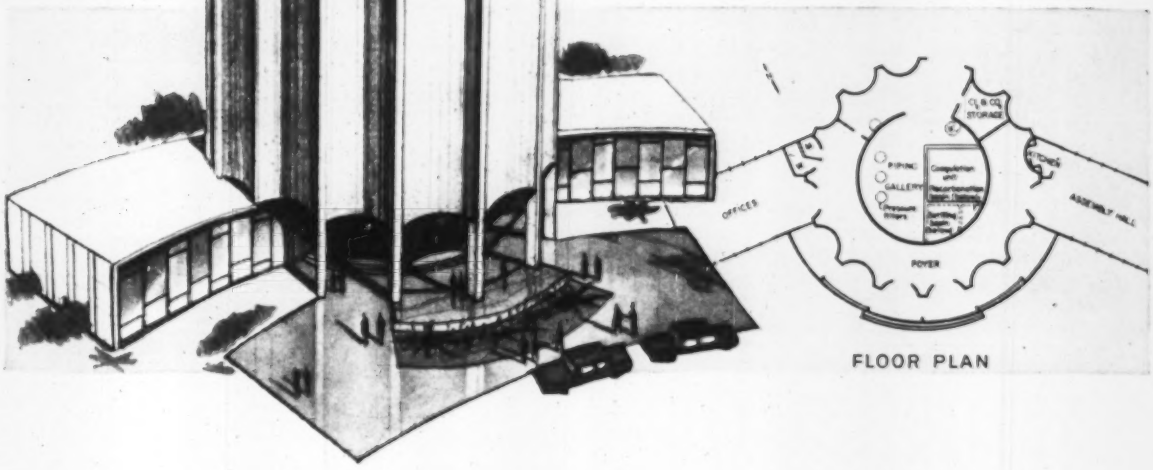


FLOOR PLAN

modern concrete design puts "dead" space to work to provide attractive, useful municipal center!

The growing community of Olympia Fields solved more than one problem by choosing concrete for its water tower. The elevated water tank itself is prestressed concrete, 1-million gallon capacity. It is built for years of dependable, trouble-free service.

And supporting the tank on concentric walls of reinforced concrete gives an enclosure with plenty of room to house a compact treatment plant, plus second-floor storage for chemicals and department equipment. The fluted outside wall creates an unusually attractive structure.

It is proposed that the wings will be added later, to be used for municipal offices and a large, pleasant assembly hall. (They would serve equally well as fire and police stations, civil defense or street department offices.) The result will be an efficient, integrated structure of architectural beauty.

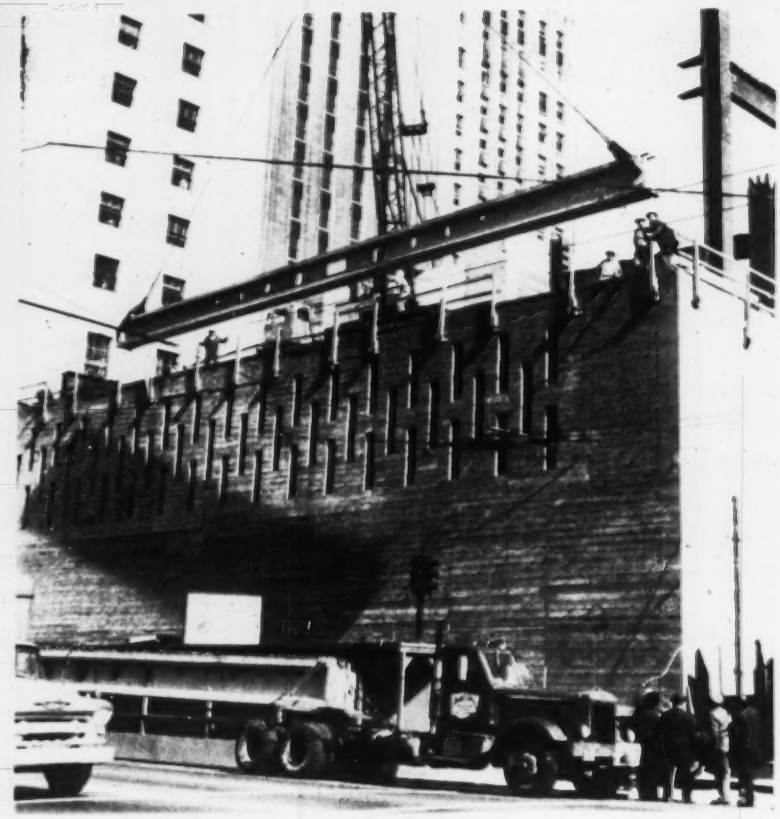
Engineers estimate that the combined building will save Olympia Fields real money—as much as $270,000 compared to the cost for separate facilities. And concrete will go on saving money. There will be little or no upkeep, ever. Concrete can't rust, doesn't need frequent painting. When America builds for beauty *and* economy . . . it builds with concrete.

Consulting Engineer: R. W. Robinson & Assoc., South Holland, Ill. Architects: Wasserman and Cabanban, Assoc., Chicago, Ill. Tank Design: The Preload Company, Inc., New York, N.Y.

PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete

MODERN
concrete



In this glass-enclosed building . . **Prestressed concrete beams span 70 ft between . . .**

Prestressed Concrete Teams With

To obtain 70-ft column-free spans in Seattle's new Norton building, designers have combined prestressed concrete beams with a structural steel frame. Result is a spectacular office tower rising 16 stories above street level with an all-glass and aluminum exterior.

The Norton building is intended by its owners, Northwest Building Corp., as first-class office rental space. The designers, architects Bindon & Wright of Seattle and their consulting architects, Skidmore, Owings & Merrill of San Francisco—recognized that a basic principle in such a structure is provision for future flexibility. It's hard to predict what office needs will be 10 years from now.

To achieve flexibility the building incorporates long, clear spans and a uniform module. Since long spans mean extra cost, the designers explored means of achieving this objective with minimum costs.

Their estimates indicated that prestressed concrete beams working with a steel frame would result in an economical long-span structure.

Five-foot-square modules help insure flexibility. Each module is provided with individual lighting as well as air supply and exhaust. And outlets for telephone and electrical services are led to each 5-ft square. Thus, partitions can be placed at any 5-ft interval in the office floors. And they can be moved to any 5-ft grid or module line.

Resulting office tower plan is 70 x 210 ft c-c of corner columns. There are three 70-ft bays in the longitudinal direction and two 35-ft bays in the transverse direction. The prestressed concrete beams span 70 ft in the longitudinal direction. And a utility core occupies a 35x70-ft area on one side of the center bay. Thus, each 210x70-ft office floor is a U-shaped, column-free area surrounding the utility core.

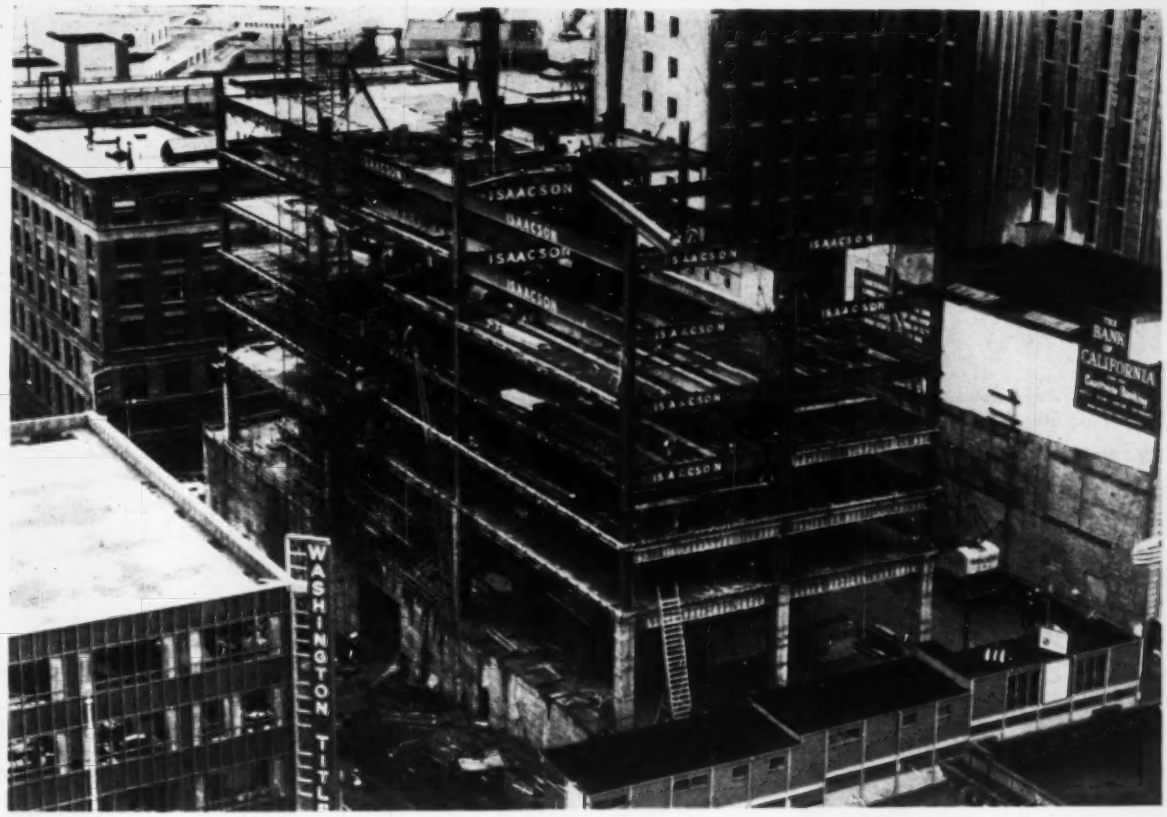
The building actually has 21 floor levels, including a mechanical floor and three garage floors (accommodating 300 cars) below ground-floor level. It extends for a full, steeply sloping block along Columbia St. between First and Second Ave. Main entrance to the ground floor is from Second Ave. On First Ave., however, access is at third basement—or middle garage—level.

The four basement floors occupy the entire 235x119-ft lot. The office tower rises from a plaza on top of this lower structure. A bank occupies the ground-floor level. Due to the setback, the free-standing office tower has maximum light and view. Most windows look out on Puget Sound.

• **Structural steel frame**—Columns, spandrel beams in the longitudinal direction and transverse girders are all of steel construction. In the lower stories, the 12 main columns are 14WF320s with cover plates. Center columns, though, have more cover plates than these.

The spandrel beams are 36-in., 150-lb WF members, as are the transverse girders, except that the girders are strengthened with cover plates. Girders surrounding the core are dropped below the rest of the floor framing so that utility ducts can be fed into the floor system between the prestressed concrete beams.

• **Prestressed concrete beams**—The prestressed concrete beams are placed on 10-ft centers spanning between transverse girders. These I-shaped members are 37 in. deep. They have 20-in. flanges and a 6-in. web. The top flange



Structural steel girders to carry the floors. Columns above the ground floor are steel.

Structural Steel in Tall Building

is 5 in. thick and the bottom flange 6 in. thick. With 14 beams required on each floor, there are a total of 238 prestressed concrete beams.

The beams are pretensioned and post-tensioned. In the bottom flange there are 24 pretensioned strands, each ⅜ in. nominal diameter and made up of seven wires. Effective compressive force applied by these strands totals 278 kips. Each beam also has two post-tensioned tendons, each comprised of twelve ⅛-in. wires. These cables follow a draped pattern and are tensioned for an effective residual compression of 209 kips.

To satisfy the Seattle Building Department about the adequacy of the strength of these beams, a typical beam was tested under dead load plus three times the live load. During this test the beam developed minor cracks at the critical sections. However, these cracks all closed completely after removal of the test load.

The prestressed beams have stirrups projecting from the top. Stirrups and the top one inch of the beams are embedded in the 6-in.-thick floor slabs.

One reason for arranging the prestressed beams in the longitudinal direction of the building was to minimize holes required for mechanical services. This was successful only to a degree. Necessity to provide for cross runs resulted in nine sizable holes and six smaller ones, the biggest being 38 x 17 in. All such holes were near midspan point of minimum shear.

Details had to be developed for anchoring the prestressed beams into the steel girders. The steel girders were strengthened on both web and bottom flange. And a 1¼x¼x27-in. seat plate was welded to the flange. A shoe plate on the prestressed beam measuring 6 x ½ x 27 in. mated with the seat plate. Bolts on each side of the beam hold it to the girder. In addition, a plate extending from the top of the concrete beam was bolted to the top flange of the steel girder.

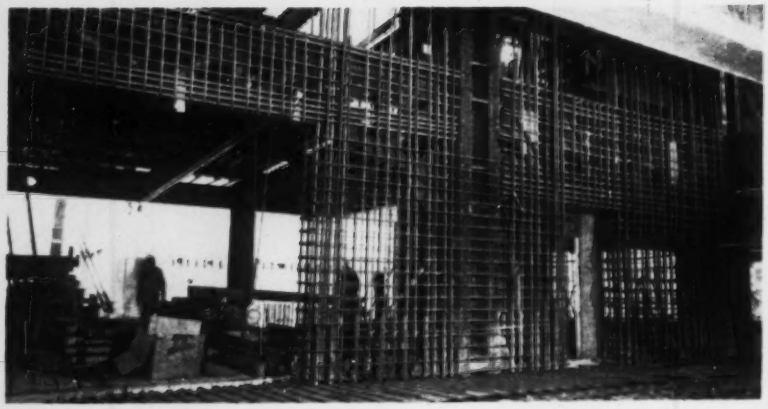
• **Earthquake resistance**—Providing resistance to lateral forces proved to be an interesting and ticklish problem. Seismic forces exceed wind loads in both transverse and longitudinal direction. And the prestressed concrete beams serve only to support floor loads; so they do not figure in the lateral force calculations, except insofar as they are part of the floor diaphragm system.

Although Seattle has been subjected to earthquake shocks within recent years, it is not considered to be in as hazardous an earthquake area as, say, San Francisco and Los Angeles. The Seattle code requires a design lateral load of 2.3% of the weight of the building plus 25% of the design live load.

The lateral-force resisting system of the Norton tower includes a moment-resisting steel frame, concrete shear walls on three sides of the utility core and floors acting as horizontal diaphragms.

In the longitudinal direction there is only one shear wall—that is along the interior face of the utility core. Openings in this wall are framed at the top with shallow trusses with moment-resisting connections to the columns. And the concrete encasement includes heavy reinforcing. In the transverse direction there are two shear walls along the utility core.

Lightweight concrete is used in the tower portion for the floor slabs and for secondary walls. Shear walls, on the



UTILITY CORE WALL is heavily reinforced to provide lateral force resistance.

AT TRANSVERSE CORE WALL the girder was lowered to let utilities pass between beams. Wall will be coacreted to resist lateral shear.

AT CONNECTIONS steel-girder flanges and web are stiffened.

other hand, are regular concrete. The extensive use of lightweight concrete resulted in a weight saving of about 20%, with a corresponding saving in the size of structural members. But perhaps the most important effect of the lighter weight is the reduction of seismic forces. It might have been extremely difficult to take care of lateral loads if regular concrete had been used throughout the building.

• **Lower-floor design**—The four floors below ground-floor level are all of concrete design. The three garage floors have 10-ft floor-to-floor height and the mechanical floor just below the ground floor has a 17-ft story height. This compares with ground-floor height of 24 ft 8 in. and typical office tower floor height of 13 ft 2 in.

Primary columns in this lower area are extremely heavy. For example, some of the 55-ft-high columns include 192 sq in. of No. 18 reinforcing bars.

All lower floors are of flat-slab design with tapered drop panels and spans of 35 ft in each direction.

Most of the foundation consists of spread footings. The utility core is supported on a solid mat. And there are some steel piles where a stratum of loose sand was encountered.

• **Glass exterior**—Exterior of the building is heat-absorbing gray glass. This has a neutral tone that doesn't conflict with other colors. It reduces light values by admitting some 40% of visible light.

The utility core is set back from the exterior of the building so that the glass finish completely envelops the structure.

Spandrels are encased in dark blue-gray glass. Trim is a natural anodized aluminum. The floors below ground level are in a polished granite veneer.

Floor of the plaza is a mosaic tile. Entrance to the building is a one-story lobby extending out from the utility core side. It has a 48-ft-span, post-tensioned concrete roof that is 12 in. thick along the perimeter and 16 in. thick at midspan.

Normal pedestrian traffic would approach the building from the Second Ave. side. Moving stairs—63 ft long with a 37 ft rise—connect First Ave. with the building lobby. Building elevators are fully automatic, high-speed units.

The structure is air conditioned and the exterior windows are fixed. All mechanical equipment is located just below ground-floor level. But, due to the sloping site, the air inlet is some 40 ft above street level on the low side.

The Norton building is being constructed for the Northwest Building Corp., Allan H. Link, president. Architects are Bindon & Wright of Seattle with Leonard W. Bindon and John L. Wright, partners-in-charge.

Consulting architects are Skidmore, Owings & Merrill of San Francisco with Elliott F. Brown, partner-in-charge, Alan S. Robinson, project manager, and Myron Goldsmith, structural engineer. Prof. T. Y. Lin and Arthur Anderson were consultants on prestressed concrete design. Mechanical engineers are Bouillion, Griffith & Christofferson of Seattle.

Isaacson Iron Works of Seattle is handling the structural steel fabrication and erection work. Prestressed beam fabrication is by Concrete Technology Corp. of Tacoma. Howard S. Wright Construction Co., Inc., of Seattle is general contractor.

ENR Index Is Ready

ENR's index of editorial content for January through June is now being mailed to those on the index mailing list. Copies of the 1958 index are also available. The index is free. To get your name on the mailing list, write: Indexing Department, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

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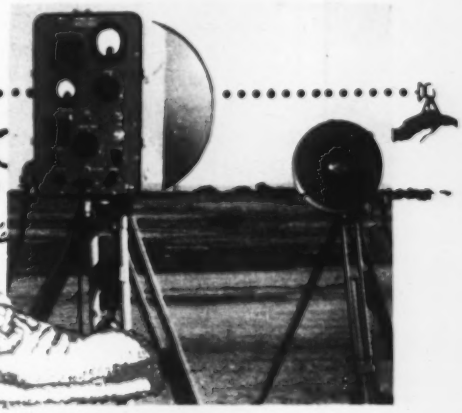

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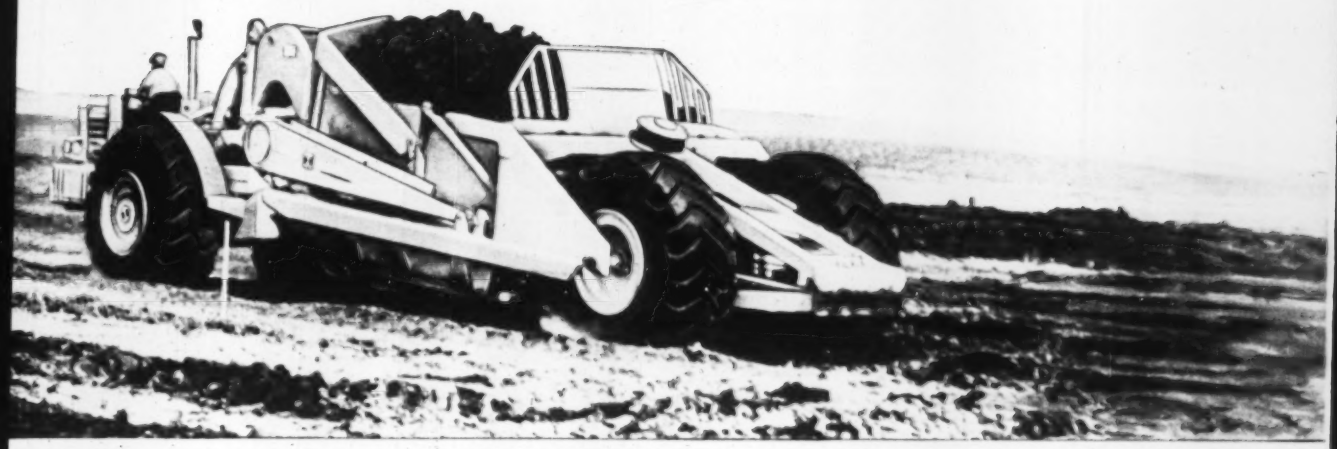


Three "295's" of a 6-unit Payscraper fleet, building new superhighway near Beloit, Wisconsin. Both the "295" and "495" feature International's fast-acting, finger-tip controlled model 280 cable control unit—built to give you high capacity; simple adjustments; low upkeep! Positive, forced ejection, plus gaping 98" apron opening, assures fast, positive dumping of all materials. Even gummy, barrel-sized blue clay chunks are quickly ejected—as this "495" view proves, on an operation of V. H & M Construction Co., Denham Springs, Louisiana.

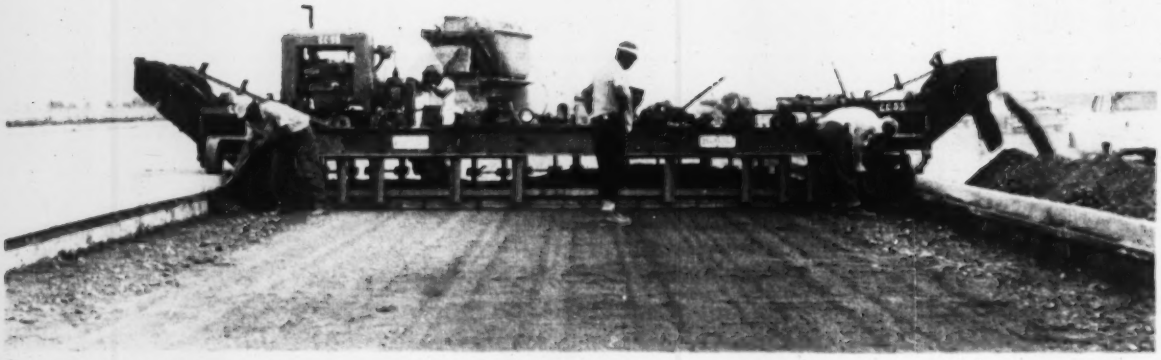
7 Good Money-Saving Ideas for

1 Making Three Fast Rollers Out of a Slow One

D. W. Winkelman Co., Syracuse contractor dismantled a three-drum, 12-ton roller of marginal value to make three units like the one shown being towed by a weapons carrier on a paving job at Clinton AFB in Ohio. Fast and flexible, it's being used to seal the base course. The original wheel yoke has been tipped to a horizontal position to serve as part of the towing frame. This sort of equipment utilization is typical of the ingenuity demonstrated by the Winkelman firm. Several other examples of how Winkelman saves time and money on this and other jobs are shown on this page.

2 Fast Soil Testing With New

This recently developed nuclear density-moisture meter tests soil without disturbing it—and does it in four minutes instead of 30 to 60 minutes required for conventional tests. This cuts down on interference with Winkelman's equipment, simplifies coordination of work. Box at left is sending Gamma Rays into



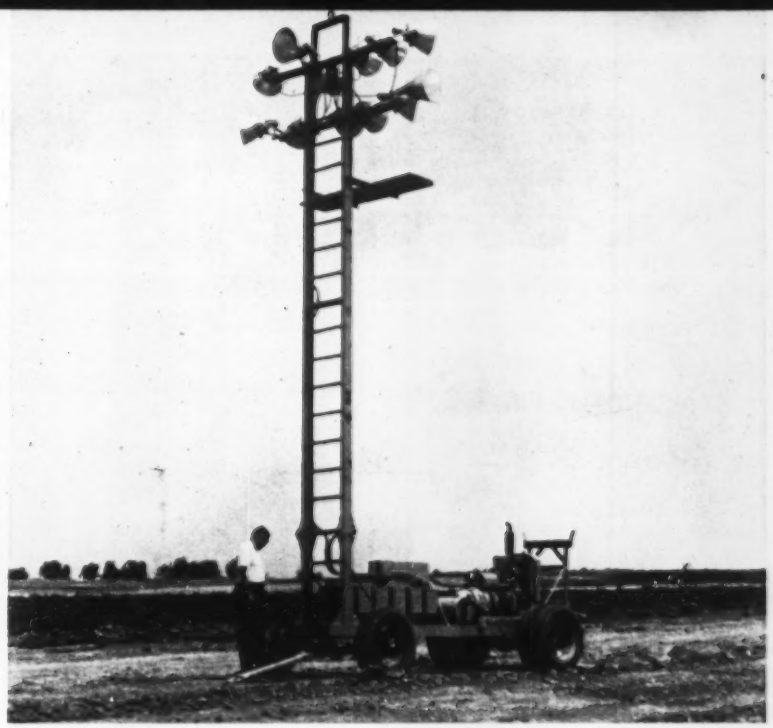
4 Standard Subgrader Now Works at Nine Different Depths

This standard 10-m. subgrader is shown finegrading 21 in. below the form tops. The manufacturer worked with Contractor Winkelman to lengthen the side conveyors and built nine extra full sets of interchangeable units for the vertical members. Now, without much trouble, the machine can be set up to work at depths of 7, 10, 11, 15, 16, 17, 19, 21 or 26 inches. The men next to the forms are hand cleaning the small berm left by the modified unit.

Contractors

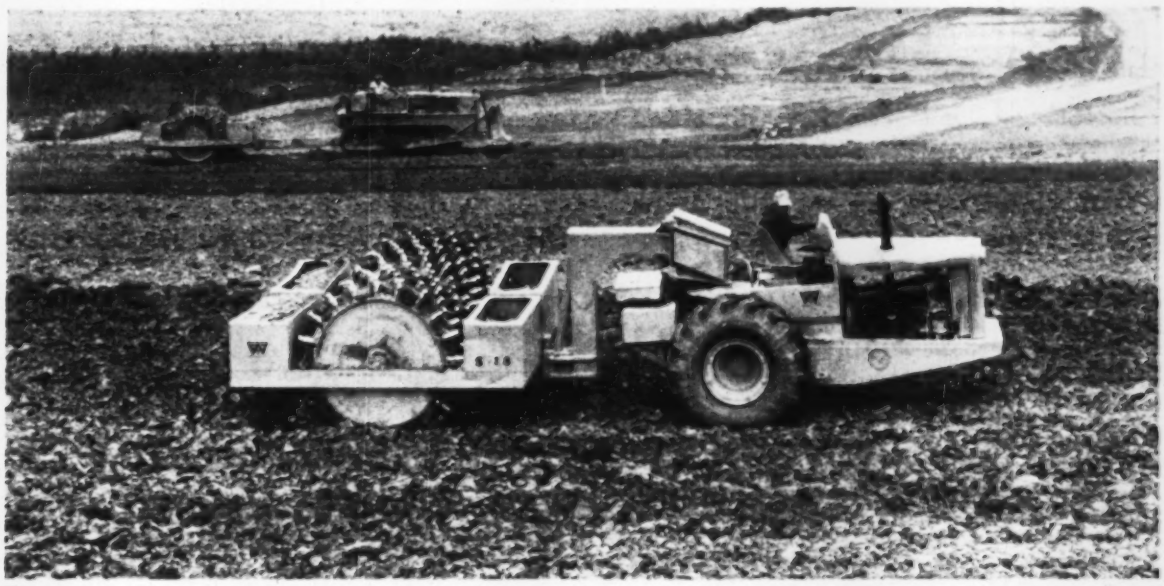
Radioactive Meter

the ground. Control panel at right counts return rays. The greater the density, the smaller the return. For testing moisture content, the box at left is changed for one that issues "fast" neutrons, which slow up when they combine with the hydrogen atoms of the water.



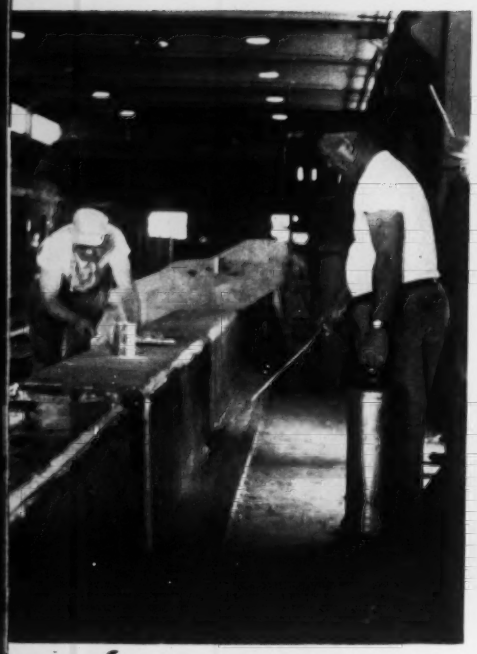
3 Getting Light Where You Need It, When You Need It

An old 2½ ton truck chasis carries a diesel powered 15 kw generator and its own "light pole." The 27½-ft mast holds twelve 1,500 mercury vapor lamps high enough above the ground to give the unit a 500-ft-wide, 2,250-ft-long illuminating range. The mast is made of 6-in. channel held 30 in. apart by pipe spreaders that also serve as ladder rungs for access to the work platform. It is pin-hinged 6 ft above the ground so that it can be folded back onto the frame at rear when the traveling light pole is towed over rough ground or is transported over the road on a flat bed truck.



5 Faster Compaction With a Rubber-Tired Tractor

The rubber-tired prime mover in the foreground was built to carry a 13-cu-yd pan. It's now pulling a dual drum sheepsfoot roller—and doing it at a faster clip and with less maintenance than the track machine in the rear. The roller was adapted for towing behind the wheeled unit by substitution of a goose-neck for the standard tongue. The goose neck is made of conventional 10-in., 42-lb bearing pile H section, boxed and gusseted.



6 Taking the Bugs Out

An ordinary garden sprayer is used in a Winkelman prestressing plant to oil forms. It saves on oil, helps keep the floors clean, makes it unnecessary for the oiler to bend over. Similar units are used on Winkelman jobs for applying form oil and occasionally for limited spraying of water.

7 One Driver, Two Buckets, No Turn-Around

This "Double-Dumperete" trailer, made in Winkelman's Syracuse shop, needs only a coat of paint before being sent out on the job. The tailor-made tandem trailer is 20 ft long and carries two standard 6.25-cu-yd struck capacity Dumperete bodies and hoists. The side mounting saves turnaround time needed for conventional rear dump units. A 2½-in. hydraulic pump runs off the power take-off to activate the pistons. It is possible to dump buckets separately or simultaneously. Hydraulic outriggers in front of rear wheels carry 2½-in. double acting pistons, and hit the ground as soon as body jacks move.

. . . Big Air Base Job Is Routine for Him

The equipment shown on the previous pages is but a small part of the entire plant the D. W. Winkelman Co. is using on its part of a $34-million upgrading of Clinton County AFB near Wilmington, Ohio. But it is strong evidence of how savvy contractors adapt available machines to their own use.

Winkleman's $8.3-million contract involves, among other things, 1.7 million cu yd of excavation and the placement of 270,000 cu yd of concrete—not all on earth fill.

The work is being done under the Strategic Air Command dispersal program. It's divided into three catagories: demolition and replacement of existing runways and taxiways; overlaying of existing runways and taxiways; construction of new runways and taxiways.

The overlay work posed several problems for which Winkelman found interesting solutions. The job was to put 15 in. of concrete over a slightly irregular existing 9-in.-thick pavement and to hold the top surface to ½-in. tolerance in 12 ft.

But the specifications required that the existing pavement first be cleaned sufficiently to permit at least a partial bond between new and old concrete. When other methods failed, Winkelman turned to two truck-mounted steam cleaners—standard equipment for cleaning construction machines in the field—and they did the job. In four weeks, two rigs had the pavement ready for overlay.

Anchoring overlay forms to the existing pavement was another problem. To do the job fast and accurately, the hole locations were marked from a template made to correspond with the pin holes in the form. Wagon drills put the holes in. The holes were then filled with sand, which provided a tight grip on the form pins.

To level the forms on the somewhat irregular existing pavement, hardwood strips were cut 4 in. wide and of random thickness. These strips were placed on the concrete in two parallel lines so that one strip supported the toe and the other the heel of the forms. Additional shimming when necessary was achieved by the use of shingles inserted between the wood strips and the base of the forms.

In addition to the special equipment pictured, most of which was developed under the direction of Archie La Pointe, the firm's maintenance supervisor, Winkelman is using 15 rubber-tired and three tractor-drawn scrapers, nine graders, 10 tractors, four discs and four rollers to handle 75,000 to 90,000 cu yd of material earth every week.

To do this, project manager William Delaney Jr. has his earthmovers working six days a week on two nine-hour shifts—and the production of the night crews are just about the same as that of the day crew. In six days, picked at random, the day shift moved 43,810 cu yd while the night crew moved 42,610 cu yd.

And with concrete coming from a plant set up about 2,500 ft from the job site, concrete placement is averaging over 3,000 cu yd per day.

See next page for more on Winkleman.

Dwight W. Winkelman . . .

The Flying Contractor

It is about 4:30 pm when the gleaming twin-engine airplane turns away from the glass block hangar and starts down the runway, its nose toward the sun.

At that hour, most men have nearly completed a day's work. They are rolling down their sleeves, putting on their coats, cleaning up their desks or, benches and preparing to go home.

On board the plane is a man who has done a day's work—he's been on the go since 7 am. But he isn't within eight hours of being finished. His coat is off, the cuffs of his expensive shirt are turned back and he is poring over figures in a notebook on a desk before him. The figures pertain to a job 400 miles away that he will visit before dark.

By Associate Editor Ed Young, *who spent three days flying with Dwight Winkelman on his $20-million merry-go-round. "He goes a lot faster than I ever did," says Ed, who was a heavy construction man for 17 years before becoming a construction journalist.*

The man is Dwight W. Winkelman, president and principal owner of the heavy construction firm of D. W. Winkelman Co., Inc., Syracuse, N. Y., and head of five other companies active in construction, construction equipment and construction materials.

Dwight Winkelman is a stocky and muscular man whose round face has a built in smile. A 12- to 16-hour day is routine for him. And he loves it—provided he can spend the time in the field. "I see just as little of my offices as I can," he says. "After all, in this business, the money is made on the jobs, not behind desks."

Other successful contractors may argue that point, but for Winkelman's company it has brought results. The firm is one of the best known constructors in the country. With its subsidiary, D. W. Winkelman Carolina Co., it owns close to $10 million worth of construction equipment, seldom grosses less than $20 million worth of work a year, occasionally hits $40 million. Its payroll carries from 700 to 3,500 names.

Among work the two companies now have in progress are a $6.2-million sewage treatment plant in Syracuse, an $8.3-million air field job in Ohio, $15-million in highway jobs in New York, Ohio, North Carolina and Virginia.

The parent company is also co-venturer with Edward Balf Co. and Savin Brothers, Inc. on a $37.3-million tunnel job in Niagara Falls for the Power Authority of the State of New York.

And Dwight himself fares well. He has two homes. One, in Skaneateles, New York, dates from 1845. Called "Lakelawn" it is set on more than 200 acres of well tended grounds. Elm trees 100 feet high, rolling lawns and over a thousand feet of frontage on Skaneateles Lake, easternmost of the Finger Lakes, makes a perfect setting for a country squire. And country squire is just what Winkelman is when he is at home.

Winkelman plays as hard as he works. In 1958, at the age of 56, he won the Veteran Skaneateles Water Ski Championship. Until recently he relaxed by flying a small seaplane, which he kept based on the lake in front of his house. His 26 ft cabin cruiser is used by the family, members of his organization and friends—on Skaneateles Lake and anywhere else in the Northeast where there may be yachting or skulling events of interest.

His favorite form of relaxation is riding. For years he maintained a stable of polo ponies. Today his horses are all hunters. He uses them for shows and for his favorite sport, fox hunting, at his second home—"The Terraces," in Southern Pines, N. C.

Modest to the point of reticence, he is nonetheless proud of scholarship funds he has set up at Syracuse University, where he is a trustee, and at Morningside College in Sioux City, Iowa.

Without his saying so, Dwight Winkelman's attitude about money is readily apparent: Have it, enjoy it, help others with it—but earn it.

Under pressure, he will admit he's earned his money. Then, with a broad grin he adds, "But not the hard way."

"The world and everyone in it has been pretty good to this Iowa Dutchman," he says.

That may be true, but he has far more to do with the success of his ventures than he will acknowledge. He keeps in close touch with all his jobs—not from records but by personal visits.

Today, the 4,500-ft runway of his private airport at Lakelawn is the starting and terminal point for flights that keep him in the air up to 600 hours a year. His pilot, C. A. Kirley is a former air corps squadron commander with 53 combat missions in World War II. Flyer Kirley says it is not unusual for him to leave Lakelawn at 5 am, fly

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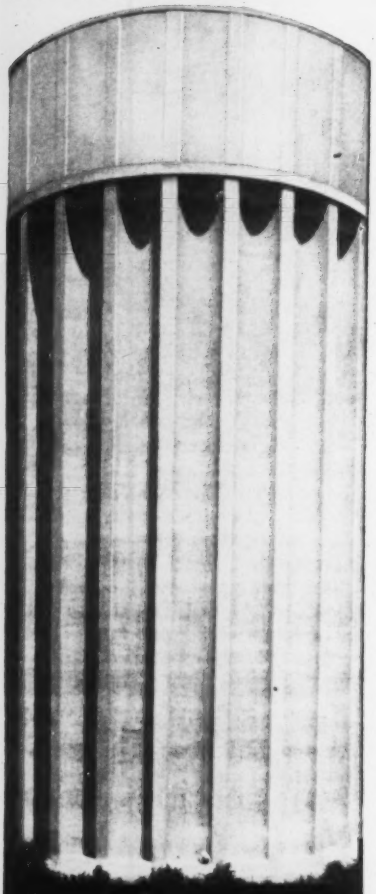

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Montreal 16, Canada

". . . A contractor has to get the most out of his machines."

1,000 miles, and return at midnight after visiting two or three jobs.

And Winkelman's job trips are not sightseeing tours by a visiting potentate. Nor is the flying time spent in enjoying an aerial view of the scenery.

In the plane with Winkelman on this particular flight is William Robinson, the eastern superintendent for the construction firm. He has with him a rundown on the jobs under his control. He and Winkelman spend almost an hour discussing problems and progress. Equipment efficiency and maintenance costs get a good going over. "With the cost of labor steadily going up and the productivity just as steadily going down," says Winkelman, "a contractor has to get the most out of his machines."

To do this, he maintains close check on the major machines among the more than 1,000 pieces of equipment on his company's inventory. On this flight, a troublesome scraper on a job in Rome, N. Y., is under discussion. Its maintenance record looks bad, and the two men decide to dispose of the piece. They might have decided to convert it to some other use (see p. 40).

At Akron, the Twin Super Beechcraft sits down for a moment to pick up George Cecil, Winkelman's western superintendent, who has been notified by radio to be on hand. He is armed with records from the job at Clinton AFB, which Winkelman is going to see. When the plane lands at the air base, 40 minutes later, the three men get off, knowing just what is to be done, and where to start.

The concrete plant is the first stop. Waiting for them is Archie LaPointe, superintendent of maintenance for the construction companies and a top flight mechanic.

Also waiting: Dwight Winkleman, II, 25-year-old trouble shooter at Clinton. (He has a second son, Peter Jan, a college student.) For a few moments, the senior Winkelman forgets his role of contractor and becomes a father and doting grandfather. He asks about his daughter-in-law and hears the latest on the antics of his grandson, Dwight, III, and granddaughter, Wendy.

Then, back to business. A mixer has broken down and should be replaced. This resolved, contractor Winkelman returns to the job site for a talk with Corps of Engineer representatives. They are satisfied with progress, so he climbs in a pick-up with job superintendent William Delaney, Jr. and jounces across the rough terrain beside the runway work. Delaney spouts a steady stream of job facts. His boss listens, injecting an occasional comment or suggestion.

At 8 pm Winkelman leaves the job for a dinner at the trailer home of his son. By 10:30 he's back at the base to inspect the night earthmoving operations. He watches La Pointe remove and replace the magnet on a subgrader. He notes the effectiveness of the lights, suggests a minor change in equipment use. By midnight he is at a small hotel eight miles away. Its a clean place but old and rundown—and full. He shares a double room with his job superintendent. (ENR Editor Young got the only single in the house.)

The accommodations are a far cry from those at Lakelawn, but that doesn't bother Winkelman. As his wife Marguerite, later explains, "In this business, you never quite get away from old hotels." And she should know for, she spent the first years of her married life traveling around with her husband.

By 6 am he is back on the job. At 7:30 he is ready to leave for Niagara Falls, and his joint venture with Balf and Savin. Nobody has had lunch, so sandwiches are delivered to the plane. Pilot Kirley says "Sometimes I think this thing is more restaurant than plane. We eat more meals here than at home." Superintendent Robinson is flying to Niagara with Winkelman. Superintendent Cecil is waiting for a second company plane that will take him to Huntington, W. Va.

At Niagara Falls, the Clinton story is repeated. At 6:30 pm, dusty and disheveled—but apparently not tired—Dwight Winkelman is ready to return to Lakelawn. At 8 o'clock, he is entertaining guests, the country squire again.

Winkelman was graduated from the University of Iowa in 1924 with degrees in finance and commerce. For three years he worked on construction jobs throughout the middlewest and the south. In 1927 he went into business for himself, on a small scale. On his first job, he handled only the work that could be done by hand labor. The machine work he subcontracted out. In 1935 he settled in Syracuse. From then till now, the climb has been steadily upward.

And the "Dutchman" hasn't restricted his activities solely to his own business.

He is a long-time member of the New York Chapter of the Associated General Contractors of America and twice served as its president. In 1948 he was national president of the AGC. He has served the construction industry in many other ways. And, he asks, "Why not? When a man makes as good a living as I have from a job he owes that job some of himself."

Perhaps its because he feels that way that Dwight Winkelman has made such a good living from construction.

THERE MUST BE AN EASIER WAY

EVEN THE MOST EXPENSIVE DRAWINGS HAVE A RELATIVELY SHORT LIFE
ANYONE WANT A SLICE OF PICKLE?
SHE DOESN'T FILE DRAWINGS, SHE SHREDS THEM
FOR GOSH SAKES, STOP! IT'S LUNCH HOUR!
HEY, JOE— WAKE UP! YOUR DRAWING'S ON FIRE!
IF WE HAD A BLUEPRINTER MAKE AUTOPOSITIVE PAPER INTERMEDIATES, WE COULD KEEP OUR DRAWINGS OUT OF HARM'S WAY

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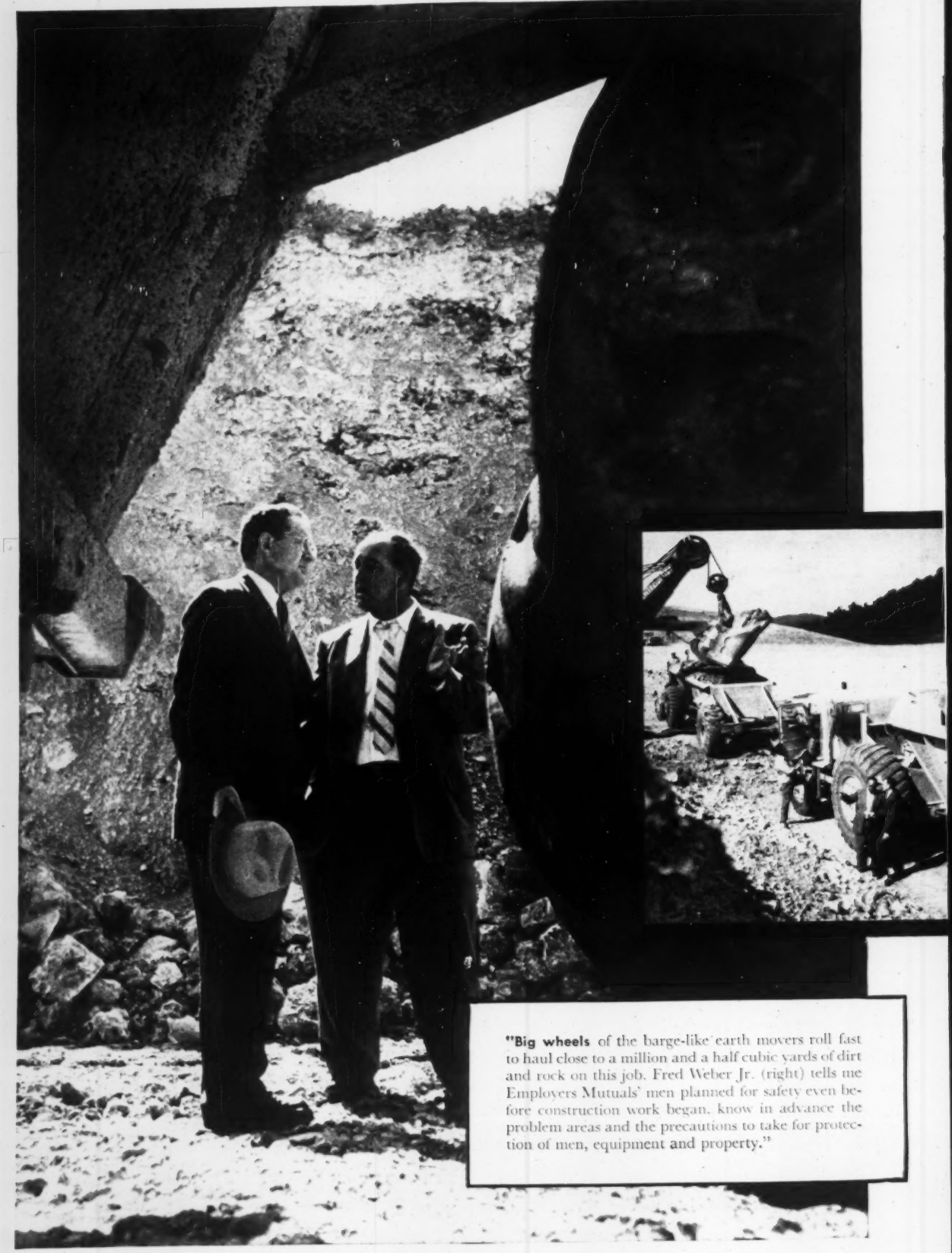


"Big wheels of the barge-like earth movers roll fast to haul close to a million and a half cubic yards of dirt and rock on this job. Fred Weber Jr. (right) tells me Employers Mutuals' men planned for safety even before construction work began, know in advance the problem areas and the precautions to take for protection of men, equipment and property."

Wausau Story

ON THE ROAD AHEAD

by **LOUIS W. PRENTISS**
Major General U.S. Army (Ret.)
Executive Vice President
American Road Builders' Association
Washington, D.C.

"As part of the highway industry, you know that our country's roadbuilding program represents the biggest construction job the world has ever seen. And you also know that the problems the work poses are almost equal to the magnitude of the task.

"Recently I visited a roadbuilding project just southwest of St. Louis on Interstate Highway 44. The work is being done by the St. Louis County Bridge and Grading Company in joint venture with its parent company, Fred Weber, Contractor, Incorporated. In talking with Mr. Weber and his two sons, Fred Jr. and John, we discussed problems contractors face in this type of construction and the need for *planning ahead.*

"The Webers told me they were impressed with a service offered by their insurance carrier, Employers Mutuals of Wausau. Using blueprints and specifications, and following this up with a study of the actual site, they give advance quotations on insurance costs. The Webers say this Pre-Bid Service enables them to make a more accurate appraisal of their costs. It also serves as a guide and check on the hazards likely to be encountered on the job.

"As the construction work goes on, Employers Mutuals men continually help maintain safe working conditions and procedures. That's good business. Safety pays not only in dollars and cents, but also in humanitarian benefits. 'Employers Mutuals men give us the kind of help we need,' says Mr. Weber.

"With this kind of safety-conscious planning, the Webers and other progressive contractors are keeping Interstate System costs down . . . giving the taxpayers the most road for the tax dollar. I'd say that makes Wausau men 'good people to do business with'."

. . . . . .

As one of the leading insurers of construction projects in America, Employers Mutuals of Wausau recognizes its obligation in working with contractor-policyholders to make their jobs come out safely and profitably. Our safety engineers are backed by a staff of construction specialists. With 109 throughout the United States, personal service is never more than a few hours away. We write all forms of fire, group and casualty insurance (including automobile) and are one of the largest writers of workmen's compensation. Consult your telephone directory for your nearest Wausau Man or write us in Wausau, Wisconsin.

"Table talk sets the day's work. Jim Miller (second from left) is an Employers Mutuals' Safety Engineer, works closely with Fred Weber and his sons, Fred Jr. and John. Before Webers submitted bid, Employers Mutuals quoted insurance costs."

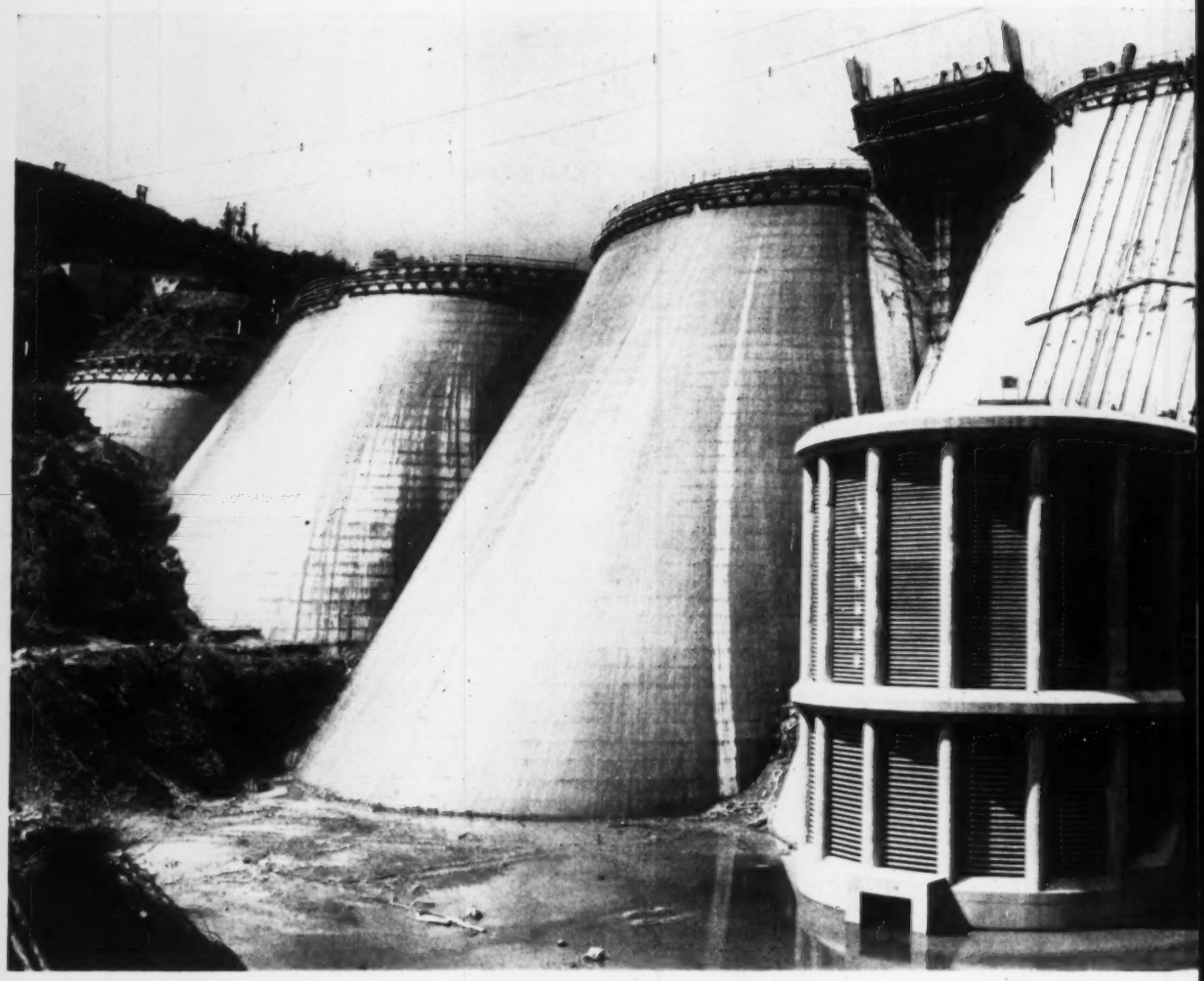
"Cross roads. During construction here, heavy equipment must often cross busy Highway 66. With Employers Mutuals' help, the Webers have set up one of the most effective safety-signal systems I've ever seen on a job."

"All clear, when rock is blasted means Employers Mutuals' men have already determined safe charges, have seen to it that all nearby property owners have been told what's happening and have suggested other hazard controls."

Another version of this Wausau Story for the public appears nationally in The Saturday Evening Post, Time, Newsweek, U.S. News and World Report and Business Week

Employers Mutuals *of* Wausau

"Good people to do business with".



Multiple arches of Grandval Dam tend toward a dome shape. Arch in foreground holds powerhouse intake and

France's Newest Dam Has Novel

Grandval Dam, a multiple arch structure nearing completion on the upper Truyere River in the mountains of central France, presents some novel features.

Most notable are the crests of the arches. Instead of being horizontal, they slope downstream (at the same angle as the slope of the buttresses).

That leaves openings over the buttresses between adjacent arches. These are plugged with gravity section walls whose weight adds to the over-all stability of the dam.

It is also claimed that a worthwhile saving in concrete results from this arrangement. The sloping crests impart a slight dome shape to the arches, so that the structure has been characterized as similar to the unique multiple dome of the Coolidge Dam in Arizona.

Another feature of the project is the use of a circular powerhouse fitted into one of the arch bays. In another unusual arrangement, the buttresses either side of the powerhouse are widened and edged with sidewalls to act as spillways of the ski-jump type. The powerhouse, which contains two 35,000-kw generators, is equipped with a 136-ft-dia concrete dome roof supported on a framework of tubular steel members.

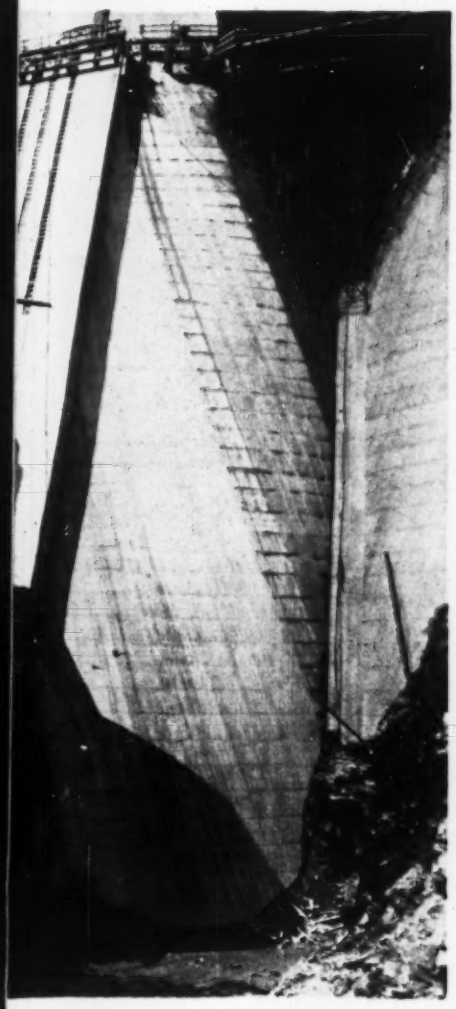
Grandval Dam is 262 ft high and contains six inclined arches supported on seven buttresses spaced 164 ft apart. The buttresses are 18 ft thick, while the arch thickness varies from 14.5 ft at the base to 9.75 ft at the top. The dam extends 1,100 ft across the valley and carries an 18-ft-wide roadway.

The project was initiated by a private power company in 1941, but the work was abandoned during the war after only a river diversion tunnel had been driven. The company had planned a concrete gravity dam, but when Electricite de France, the government power agency, resurrected the project in 1955, the multiple arch design was substituted.

As built, Grandval Dam required 220,000 cu yd of concrete. The gravity design, it is claimed, would have needed 585,000 cu yd.

Grandval Dam and its 240,000-acre-ft reservoir will provide much-needed storage to firm up the power output from three other plants on the Truyere—Brommat, Sarrans and Couesque.

Brommat, completed in 1932, is one



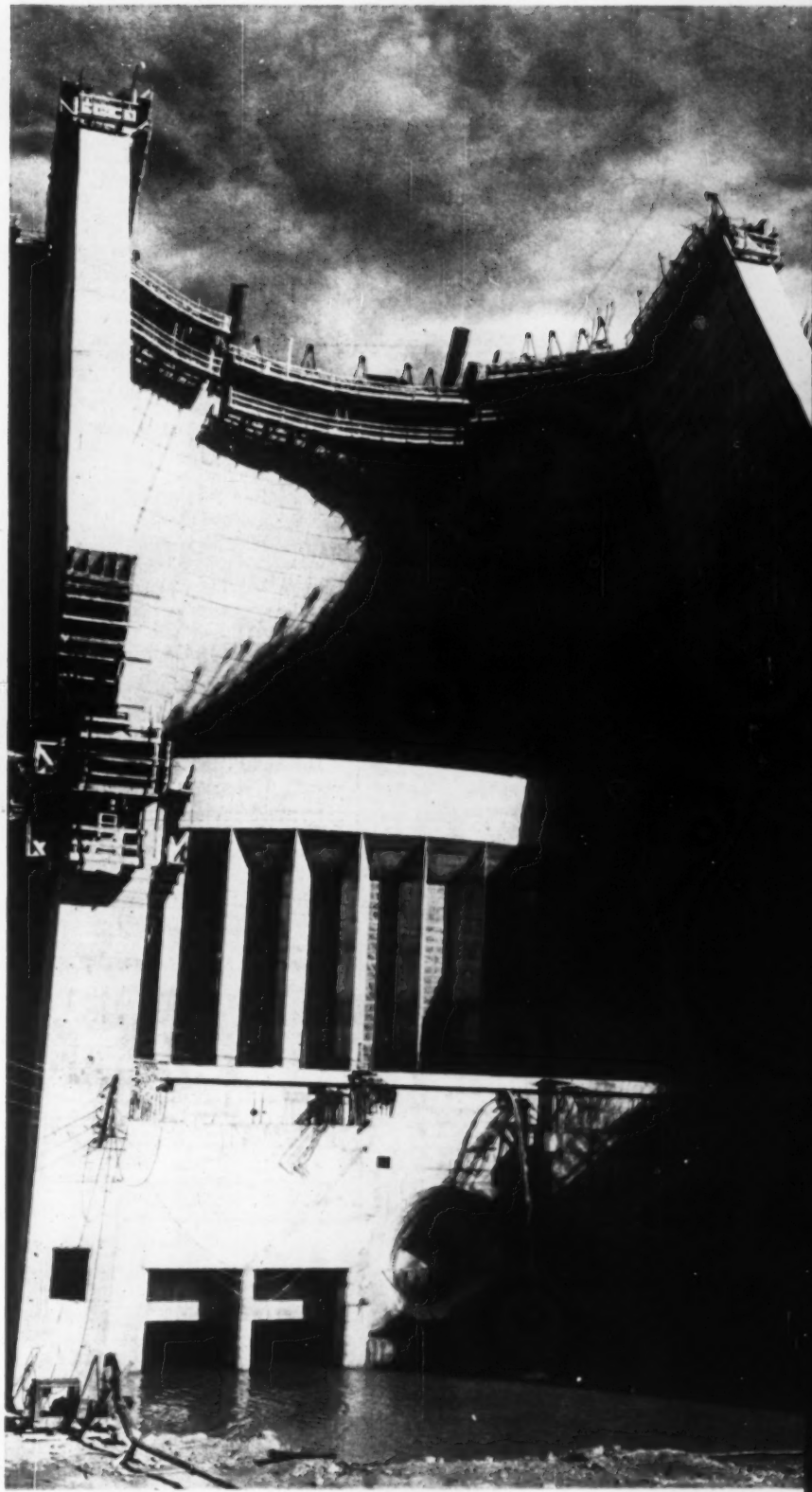
is flanked at top by spillways.

Features

of the pioneer plants of underground type. Its installed capacity of 120,000 kw was made more effective in 1934 when the concrete gravity Sarrans Dam was completed upstream to provide 240,000 acre feet of storage, as well as feed a 180,000 kw plant of its own. When Couesque, a 215-ft-high double-curvature arch dam, was completed downstream of Brommat in 1950, another 70,000-kw plant was added to the Truvere system.

These three plants can account for an annual output of 1.4 billion kwh when they have sufficient water. The Grandval storage will now assure this water supply while its own power plant will add 140 million kwh to the total power produced.

(*International* continued p. 50)



Circular powerhouse nestles between two ski-jump spillways.

JAY-PANS

America's Finest Forming Medium for

CONCRETE CONSTRUCTION

ECONOMICAL! Although priced competitively with conventional forms, Jay-Pans give you more for your money! Always new . . . custom built . . . they eliminate drippage, and the vertical sides mean good savings in concrete, as well as a nice, smooth appearance.

LABOR-SAVING! Jay-Pans are tailored for any job, and when cutting is necessary, all that is required is a saw or pocket knife. Sand is never placed under a Jay-Pan pour, and jobs stay on schedule because there are always enough Jay-Pans on the job site. Lightweight, easy to use, Jay-Pans end chipped floors, save both time and men!

WEATHER-RESISTANT! These are not regular "paper" pans. Jay-Pans are made of "freezurboard"—a patented, heavy-duty asphalt-impregnated material similar to asphalt roofing, which is saturated with asphalt. Millions of square feet of federal government, state, and private projects have proved the reliability of Jay-Pans under all weather conditions.

ALL SIZES! Tapered, adjustable, long-span, waffle, or cored slab, Jay-Pans give a clean job . . . come in all standard sizes as well as practically any other size you need to fit your most economical module.

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Construction Products Division,
VIking 3-8111 Lawrence, Kansas,

. . . International

Around the World . . .

• **Crackdown**—Association of Corrosion Engineers has been formed in England. The object is to establish standardization in terminology and techniques of corrosion control as well as to hold full-scale conventions and symposiums.

• **Back to Kasserine**—Construction will start soon on an $11-million esparto pulp mill at Kasserine, Tunisia, famous World War II battleground. Parsons & Whittemore-Lyddon, New York City, planned and will build the 88-ton-per-day plant.

• **Texts for Thailand**—Engineering literature, periodicals, books, manuals, microfilms and reports, are needed to stock a library for a forthcoming SEATO Graduate School of Engineering in Bangkok, Thailand. Those wishing to contribute should write to the Colorado State University Research Foundation, Fort Collins, Colo. The foundation will set up the school for International Cooperation Administration.

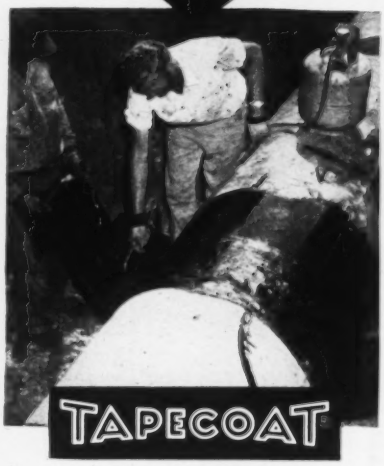
• **Arabia orders an island**—Hawaiian Dredging & Construction Co., Honolulu, has an $11-million contract with Saudi Arabia to build port facilities on the Persian Gulf near Dammam. An artificial island will be made three miles of the coast of 2.5 million cu yd of fill. A filled causeway will connect the island with the mainland.

• **India's first expressways**—Bombay will build two modern expressways, each with a length of about 15 miles, during the next four years. The routes, which will cost $8.3 million, will have two 24-ft roadways with a separating median strip. They will be the first of their kind in India.

• **Iran borrows the most**—The World Bank's largest loan for highways, $72 million, went to Iran to help finance the construction or reconstruction of 1,770 miles of main roads. Total cost of the road program will be $182 million. The project is scheduled for completion in mid-1962.

• **Sub-fluvial tunnel**—The first traffic tunnel under a river in Latin America will be built in Argentina, between Parana and Santa Candida. The 8,850-ft tunnel will run under the Parana River. Completion is set for about 1963.

The **PROVED** *Way to* CUT CORROSION COSTS!



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No other tape can match the 18-year protection record of TAPECOAT, the quality coal tar coating in tape form. Steel pipe and other vulnerable surfaces TAPE-COATED back in 1941 still show no signs of deterioration.

Field application costs are lower with TAPECOAT because it is so easy to apply with the use of a torch. No trained help required.

TAPECOAT comes in rolls of 2", 3", 4", 6", 18" and 24" widths and is applied spirally or by "cigarette wrapping."

You can depend on TAPECOAT for protecting pipe, pipe joints, fittings, couplings, tanks, conduit, cable, splices, insulated lines, tie rods or wherever severe corrosive or abrasive conditions must be overcome.

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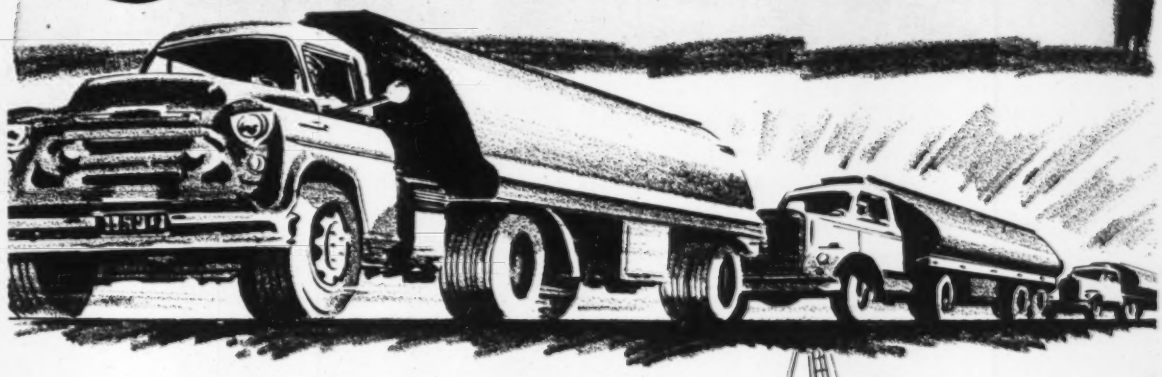
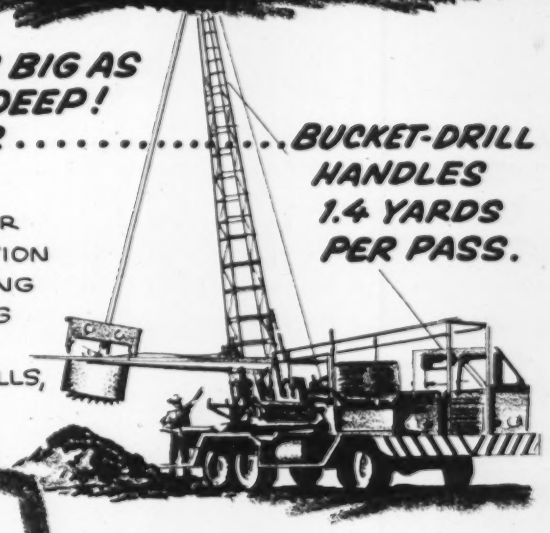
CALWELD DIGS A HOLE BIG ENOUGH TO BURY 3 TANK-TRAILER RIGS!

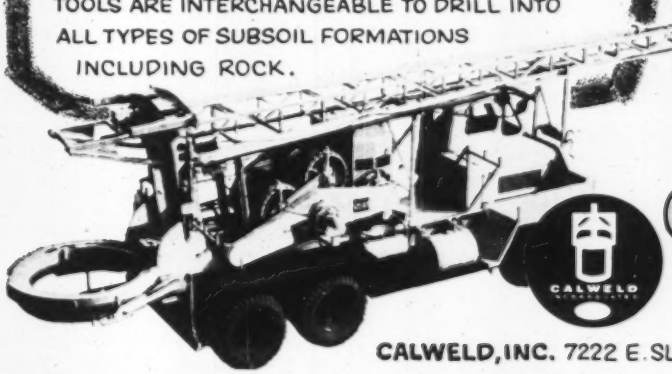


A CALWELD BORES A HOLE AS BIG AS 10' IN DIAMETER AND 200' DEEP! DIGS 45' DEEP IN ONE HOUR . . . . . BUCKET-DRILL HANDLES 1.4 YARDS PER PASS.

Hundreds of Contractors ARE USING CALWELD EARTH DRILLS FOR GENERAL EXCAVATING AND FOUNDATION PREPARATION — FOR BORING AND BELLING CAISSONS TO EXACT SIZE... FOR DIGGING MANHOLES, CESSPOOLS... FOR DRILLING WATER WELLS, SERVICE HOLES FOR OIL WELLS, SUBSOIL EXPLORATION AND TESTING.



THE CALWELD IS BIG AND DOES A BIG JOB. DON'T CONFUSE A CALWELD WITH SMALL AUGER-TYPE POSTHOLE DIGGERS. BUCKET DRILLS AND TOOLS ARE INTERCHANGEABLE TO DRILL INTO ALL TYPES OF SUBSOIL FORMATIONS INCLUDING ROCK.



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CALWELD DRILLS

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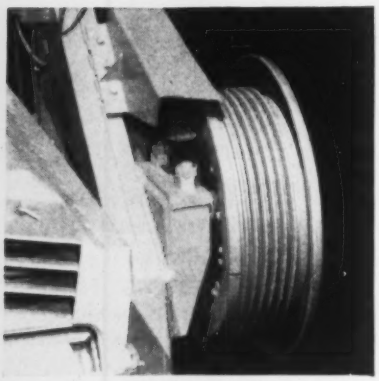
B.F.Goodrich Hi-Torque Brakes help Curtiss-Wright operators scoop up profits



Rear view of Curtiss-Wright Model CW-226 Scraper shows 26" x 7" B.F.Goodrich Hi-Torque Brake. Model CW-226 Tractor uses 22" x 7" size. Brakes for this unit are actuated with air-over-hydraulic master cylinders.

Why do so many big Curtiss-Wright tractors and scrapers (like the Model CW-226 shown above) rely on new B.F.Goodrich Hi-Torque Brakes?

For plenty of reasons: 1. Exclusive full-circle stopping power enables the B.F.Goodrich Hi-Torque Brake to stop up to twice as fast as conventional two-shoe brakes. Operators boost job profits by hauling heaped payloads, running more cycles per hour. 2. B.F.Goodrich Hi-Torque Brakes stop smoothly, without fade, so operators can tackle terrain once considered unsafe.

Other factors important to the cost-conscious operator: 3. B.F.Goodrich Hi-Torque Brakes adjust themselves automatically. 4. They need no lubrication. 5. Lining changes can be made with simple hand tools and a minimum of time. 6. Brakes can be operated by either air-over-hydraulic or direct-hydraulic actuation.

Rugged, dependable B.F.Goodrich Hi-Torque Brakes do a better stopping job on almost any kind of wheeled off-road vehicle. For more information, ask your dealer or equipment manufacturer, or write *B.F.Goodrich Aviation Products, a division of The B.F.Goodrich Company, Dept. EN-89, Troy, Ohio.*

B.F.Goodrich *Hi-Torque brakes*

Six-hammer Roadpacker . . .

Compacts High Fast Lifts

The Model D Roadpacker will compact granular materials in single lifts up to 12 in. deep at rates up to 600 tons per hour, the manufacturer states.

Six 437-lb, hydraulically operated vibrators hammer at speeds of from 20 to 95 ft per min. A high-speed range permits on-highway travel up to 30 mph.

End vibrators fold up for highway travel or narrow width compacting.

The Roadpacker compacts in either forward or reverse; vibrators do not have to be stopped to reverse direction.

Vibrator shoes are each 25½ in. wide and 26 in. from front to rear. They are mounted on a common control bar, for a compacting width of 13 ft.

An attachment is available that permits operating two of the shoes in a widening trench up to 11 in. below existing pavement.

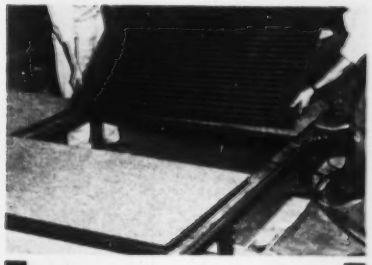
Unit comes with standard truck type tires. Special high flotation tires are available. CONSTRUCTION EQUIPMENT DIV., BOX L, BALDWIN-LIMA-HAMILTON CORP., LIMA, OHIO

Plane Simplifies Fine Grading

A long span "Highway Plane" saves time and money in leveling base, subbase and sub-grade courses in highway construction, the manufacturer says.

The machine, which can do the fine grading normally handled by patrol graders, has a 40-ft wheel base that reduces the skill required of an operator for the leveling operations. A doubly articulated frame permits turning on a 22-ft-dia circle, and it can be towed by almost any tractor with a 40- to 45-hp. motor.

The Highway Plane rides on six pneumatic tires. There are two riding wheels at the front, and two at rear.



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Self-leveling level saves up to 50% surveying time

The Ertel Level, proved successful throughout the United States, automatically assumes a truly horizontal line of sight once it has been approximately leveled by its circular bubble.

The self-leveling system consists of two carefully-positioned prisms which are moved by a gravity-operated pendulum to a precise realignment with any accidental change of instrument setting—such as one tripod leg sinking into soft soil. *During extensive leveling operations, the instrument cuts working time as much as 50%.*

The Ertel INA Level—made in West Germany—is 5⅛" high; has a 30x telescope; weighs 19¼ lbs. (including tripod). Write for Bulletin INA which gives complete data.

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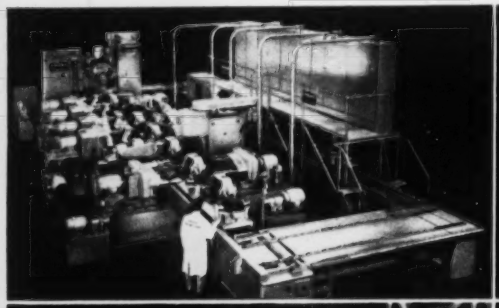
Complicated Concrete Forms Eliminated by WELD-CRETE®

-the amazing liquid bonding agent!

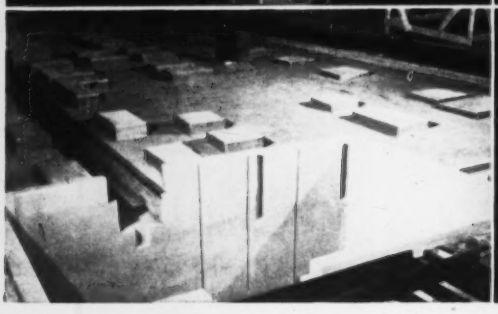
Produces substantial savings for Eaton Manufacturing Company

The Problem: To install two 75-ton 25′ x 67′ milling and drilling machines on concrete floor of Cleveland plant. Machine had to rest on piers rather than floor itself, and forms required for single pour of these mounts were extremely expensive.

Weld-Crete the Answer: Weld-Crete was brushed on 36″ thick base floor at spots where 80 piers were to be located. With the simplest of forms, these 8″ thick piers were later poured with assurance of a permanent bond to the base. The $650,000 machines have operated on these mounts for over three years.



75-ton machine mounted upon 80 concrete piers permanently bonded by Weld-Crete to concrete floor base.



Shows some of 80 piers bonded to concrete base by Weld-Crete. Simple bonding replaced complicated forming, resulted in appreciable savings in installation of 75-ton machines shown above.

Whether you're installing new equipment, moving old, or repairing floors . . . Weld-Crete enables you to *permanently* bond new concrete *directly* to old . . . or *any* sound surface. No costly, time-taking chipping, drilling, roughening, acid washing or scarifying of concrete base. When used with quick setting cement topping, you can lay new floors, ramps, driveways, etc., and run heavy truck traffic over them the next day. The insurance of a permanent bond with Weld-Crete costs as little as 4c per square foot! Get fact-packed literature about Weld-Crete from your Weld-Crete dealer, see Sweet's File, or write us direct.

The use of Weld-Crete is protected by U. S. Patent 2,760,885

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For Bonding Plaster to any surface . . . ask for Plaster-Weld®

and there are two centrally located for support and control of the 10-ft-wide bucket and blade. A double throw crank axle, with the center wheels mounted on one throw and the bucket on the other automatically controls the blade. The wheels are free to move up and down. When they drop into a low spot the blade is raised to distribute fill. On high spots, when the wheels raise, the weight is transfered to the cutting edge of the blade.

The Highway Plane is not intended to do the heavy grader work of spreading and shaping. It will, however, replace a grader on the finishing operations. Cost of the plane is reported to be about 1/7 that of an average grader. The plane is claimed to reduce the need for blue tops and to cut down on the amount of checking needed to insure uniform course thicknesses. Eversman Manufacturing Co., 1145 5th, Denver, Col.

Mobile Electric Cranes Set Own Outriggers

Two mobile electric cranes that can set their own outriggers and be ready to lift capacity loads within 30 seconds have been put on the market by R. G. LeTourneau, Inc.

The cranes are the R-30, which has a capacity of 30 tons, and the R-45, with a 45-ton capacity. All operating functions are electrically powered.

Off-road mobility is improved by individual DC electric motors geared to each wheel and by wide-base, low-pressure tires. Speed ranges to 11 mph.

The boom elevation range is from 15 deg to 80 deg. Variable speed regulation DC motors power the hook line and boom swing. Hook line speed goes as high as 550 fpm. R. G. LeTourneau, 2399 South MacArthur, Longview, Tex.

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Safeguard your investment in costly originals with durable drafting films of Du Pont MYLAR®

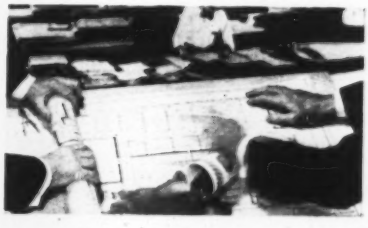
Your valuable original drawings resist tearing, slow deterioration, and rough handling when you use drafting film made of Du Pont "Mylar"* polyester film. That's because the base—"Mylar"—is tough and durable . . . won't dry out or become embrittled with age. "Mylar" is flexible, stable . . . resists absorption of moisture.

Drafting film of "Mylar" provides good contrast for microfilming . . . makes paper intermediates unnecessary. Because it costs less than many grades of tracing cloth, drafting film of "Mylar" provides you with many new cost-saving opportunities.

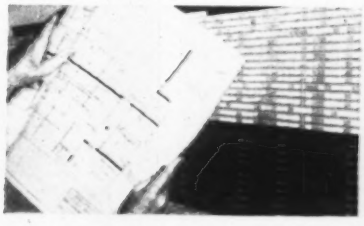
So next time you order, ask for pencil and ink drafting films of "Mylar". . . *safeguard your investment* in drafting time and labor.

If you would like samples for testing, we will ask manufacturers of drafting film of "Mylar" to send you a sample. Write E. I. du Pont de Nemours & Co. (Inc.), Film Dept., Room EN-8, Wilmington 98, Delaware.

*"Mylar" is Du Pont's registered trademark for its brand of polyester film.



"Mylar" resists absorption of moisture and liquids due to accidental spillage.



"Mylar" resists aging and deterioration . . . safeguards your investments.

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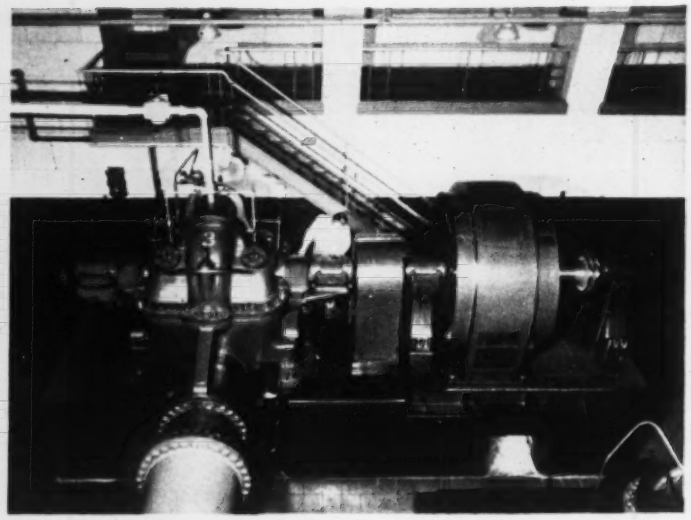
A case for F-M Split-Case Centrifugals!



Typical installation in Toledo averages 80.314% wire-to-water efficiency for year!

Exceptionally high and dependable efficiency with steady, low-cost operation year after year—that's the report from a host of municipalities and industries using Fairbanks-Morse pumps in their pumping stations.

Why? Ask stations like Collins Park High Service in Toledo, O., where five Fairbanks-Morse 36-in. Split-Case Centrifugal Pumps have been giving superb performance for 17 years. The No. 3 pump in the photo pumped 6,065,590,000 gallons in one year alone, handling 26.13 percent of the plant total, and consuming just 3.55 kilowatts hours per million foot gallons!

Your Fairbanks-Morse Field Engineer welcomes you to inspect many other reports like this from his files—reports revealing why no other manufacturer can match the experience of Fairbanks-Morse in providing pumps and drivers for both municipality and industry. Your F-M Field Engineer will be glad to work with your own engineers in selecting the best equipment for your specific requirements. Write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

See Sweet's Product Design Catalog File for complete F-M Pump Line.

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LOCOMOTIVES • COMPRESSORS • GENERATORS • MAGNETOS • HOME WATER SYSTEMS

Obituaries

Waldo G. Wildes, 80, a retired civil engineer, in Rochester, N. Y. He was a graduate of Massachusetts Institute of Technology and a past president of the Rochester Engineering Society.

Ernst P. Neuenschwander, 79, a retired civil engineer, in Staten Island, N. Y. He directed dam projects at Clove Lakes Park and Martlings Pond, both on Staten Island and worked on the construction of the Holland Tunnel as an assistant engineer. He was a past president of the Richmond County Chapter of the New York State Society of Professional Engineers.

J. C. Browne, 46, president of the Maryland Housing Corp. and developer of large housing projects in the Baltimore area. He was also president of the Lumber and Millwork Co., Baltimore.

Eben D. Finney, 63, founder of Finney, Dodson, Smeallie, Orrick & Associates, Baltimore architects.

C. Howard Johnston, Jr., 71, prominent St. Paul architect. He headed his own architect and engineering firm and designed several notable buildings, including St. Mary's hospital in Rochester, Minn., and the state historical society building in St. Paul, Minn.

Stanley H. Murdock, 76, former deputy engineer of Cleveland. Serving with the city for 38 years, he supervised construction of the Cleveland Hopkins Airport runways.

E. L. White, 69, member of the North Carolina State Highway Commission. The day before his death, the commission announced plans to build a bridge over the Cape Fear River, Wilmington, N. C.—a project Mr. White had been advocating for years. He was a former mayor of Wilmington, N. C.

Hugo W. Wahlquist, 63, corrosion specialist for Ebasco Services, Inc., New York engineering and construction concern. He was a pioneer in methods and procedures for combating corrosion on hydroelectric equipment and held patents on several engineering developments connected with corrosion.

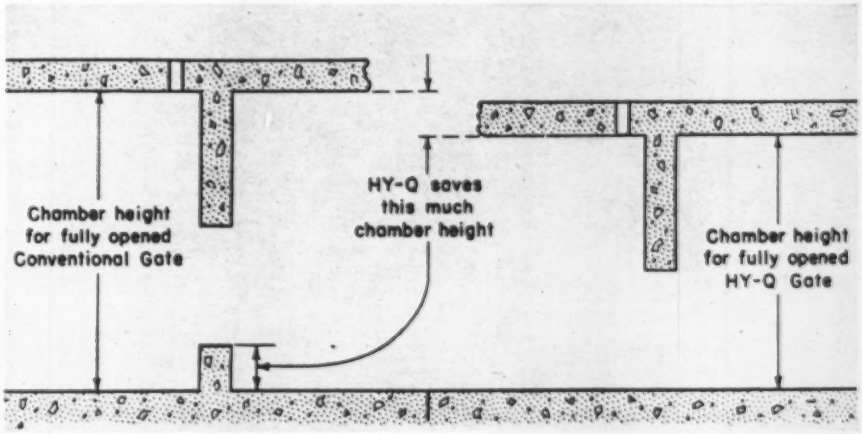
Dwight D. Gross, 79, retired chief engineer of the Denver Water Board. Until his retirement in 1951, Mr. Gross was with the Denver water systems for 48 years and served as chief engineer for 25 years. Gross Dam and Reservoir in South Boulder Canyon are named in his honor.

SPECIFY RODNEY HUNT

HY-Q SLUICE GATES WITH FLUSH-BOTTOM CLOSURE

and get these **6** design advantages

#5

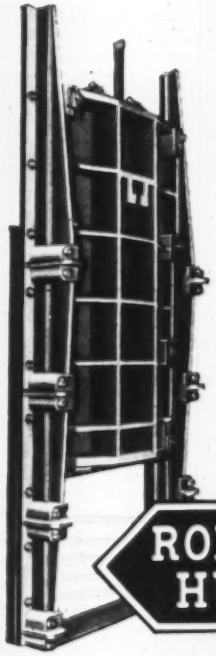

Chamber height for fully opened Conventional Gate
HY-Q saves this much chamber height
Chamber height for fully opened HY-Q Gate

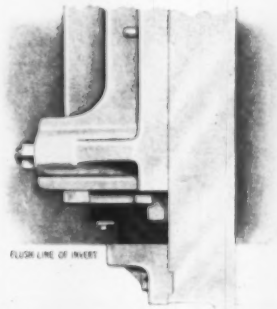
HY-Q® Sluice Gates Permit Lowest Possible Invert

In any gate installation, sufficient headroom must be provided so that the raised gate disc is completely out of the flow. And in many particular situations, extra headroom is often a prime advantage. Conventional gates require extra vertical space (left of diagram) because the bottom of the gate opening is above the channel. But since the Rodney Hunt HY-Q Sluice Gate seats at the absolute bottom of the channel (right of diagram), less chamber height is required.

The many advantages of the Rodney Hunt HY-Q Sluice Gate derive from the design of the resilient seal fastened to the bottom of the disc as illustrated at the right. This seal extends the full width of the disc and provides a cushioned closing at the stop bar *flush with the invert.* This flush-bottom closure assures – **1.** maximum flow – **2.** complete drainage without pumps or piping – **3.** elimination of silt and debris problems – **4.** maximum hydraulic gradient – **5.** lowest possible invert – and – **6.** construction economy.

In brief, the HY-Q gate offers unmatched design flexibility and construction economy for water control projects... with hundreds of gate sizes available from 6" x 6" to 144" x 144" and larger to meet your specific design requirements.





HY-Q The sluice gate with flush-bottom closure

RODNEY HUNT

HY-Q SLUICE GATE

a product of

RODNEY HUNT MACHINE CO.

Water Control Equipment Division

85 Water Street, Orange, Mass.

Serving water control engineers with equipment and engineering

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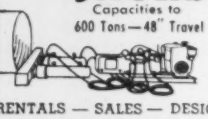

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Highway Price Trends, West Virginia

Average unit cost prices on selected items based on contracts awarded during years 1957 and 1958

Item	Unit	No. of Awards 1957	No. of Awards 1958	Unit Prices 1957	Unit Prices 1958
Clear & grub	ac	22	36	$218.27	$350.14
Exc, uncl	cy	20	36	0.86	0.756
pave	cy	23	14	1.37	1.00
bridge	cy	3	3	2.03	1.13
borrow	cy	10	18	0.56	0.69
select	cy		5		2.01
Shoulders & ditches	sy	11	45	0.086	0.09
Overhaul	sta yd	13		0.005	
Exc, struct	cy	46	70	3.15	3.18
rock	cy	15	22	20.03	9.18
wet	cy	15	11	10.09	20.89
Scarify & manipulate	sy	2	4	0.086	0.13
Traf bound base crse aggr, stone	t	6	4	3.77	5.89
Base course material, crusher run stone	t	22	56	3.48	3.24
gravel	t	4	19	3.37	4.09
stream bed or pit grav	cy	5	4	2.21	3.28
Prime coat aggr	t	27	31	5.86	6.28
Bit mat, tar	gal	39	31	0.26	0.26
asph, RC	gal	8	11	0.20	0.21
Cleaning & sweeping	sy	176	71	0.006	0.008
Aggregate limestone surf treat, 160# sy	t	28	1	5.31	7.20
patch & level	t	51	17	5.22	5.70
Grav aggr surf treat	t	6	4	6.30a	6.66b
patch & level	t	11	6	5.97	6.56
Bit matl, asph RC	gal	32	23	0.17	0.17
emul	gal	42	7	0.172	0.17
Hydrated lime	t	74	18	28.84	30.93
Hot laid asph conc bottom crse	t	27	38	9.94	10.38
wearing crse	t	70	51	9.69	10.38
FOB plant	t	40	30	7.57	7.86
patch & level crse	t	49	15	9.51	9.42
FOB plant	t	38	18	7.60	7.76
base course	t	16	1	8.75	11.00
haul and unload	t	41	32	1.05	1.53
place & complete	t	41	32	1.57	1.53
Port cmt conc pave, 8"	sy	3	7	4.95	6.24
Transverse exp jt matl	lf	4	12	0.42	0.39
Pavement reinforcement	lb	4	13	0.154	0.13
Dowel bars	lb	4	12	0.35	0.31
Tie bars	lb	4	12	0.35	0.31
Paved invert CMP, fully ctd, 18"	lf	10	31	4.68	6.00
24"	lf	9	12	6.85	7.93
30"	lf	4	9	8.29	9.23
36"	lf	4	7	12.84	14.17
48"	lf	6	5	24.05	21.90
Reinf conc culv pipe, 18"	lf	15	33	4.50	4.80
24"	lf	11	23	6.73	6.46
30"	lf	5	14	9.06	10.00
36"	lf	8	17	13.49	13.38
42"	lf	2	9	17.53	18.27
48"	lf	7	10	21.39	21.64
Reinf conc culv pipe, extr str, 24"	lf	4	7	8.07	8.11
30"	lf	2	3	11.56	11.49
36"	lf	3	4	14.16	14.24
Vit clay pipe, 8"	lf	2	2	3.78	2.05
Wrought iron pipe, 6"	lf	3	4	20.34	14.29
Piles, treated timber concrete	lf	1	2	4.65	4.26
	lf	6		13.41	
stl bearing, 10"	lf	2	9	7.23	5.96
drive	lf	4	18	3.42	3.50
splice	ea	4	16	43.33	18.47
Riprap	cy	9	12	12.81	18.67
Slope protection	sy		21		6.32
Conc, cl A	cy	11	26	62.97	58.76
superstruct	cy	16	28	67.54	68.26
substruct	cy	16	29	53.09	48.05
cl B	cy	35	42	51.30	54.86
Railing, concrete	lf	9	5	8.40	8.89
alum, tp A	lf		17		5.61
Steel reinf bars	lb	31	53	0.143	0.131
Damproofing	sy	26	37	1.85	1.11
CMP, perf, fully ctd, for underdrain, 6"	lf		6		1.61
8"	lf		6		2.18
Helical CMP, perf & fully ctd, underdr, 6"	lf	7	7	1.82	1.58
8"	lf	2	4	2.34	1.95
Conc pipe, perf, 8"	lf	1	5	4.00	1.85
RCP, perf, 8"	lf	2	5	2.16	1.94
Por conc drain pipe, 8"	lf	4	6	1.59	1.76
Cr stn, gravel or sand for underdrain	cy	24	39	6.40	5.99
Comb curb & gutter	lf	10	29	4.23	4.24
Integr conc curb	lf	2	12	1.62	1.54
Conc gutter sidewalk	sy	7	19	7.54	6.38
	sf	4	12	0.67	0.65
Drop inlet castings compl exc castings	ea	13	31	31.82	46.61
	ea	12	30	261.32	203.21
MH frame & cov castings compl exc castings	ea	7	20	54.25	58.50
	ea	7	13	513.02	410.73
adjust	ea	2	4	84.85	68.75
Curb inlet castings compl exc castings	ea	2	2	72.00	77.50
	ea	3	9	105.88	218.00
Stl beam grd rail, deep w conc posts	lf	13	28	3.29	2.80
Conc cribbing	cf	4	7	5.84	5.14
Special rock fill	cy	10	25	1.07	1.03
Water for compaction	Mgal	19	36	6.13	3.44
Aggr for maint traffic	t	1	13	4.20	3.29
Project markers	ea	....	13	.....	73.60

a 100# per sq yd. b 80# per sq yd.

Bidding Is Close for D. C. Park Contract

Corson & Gruman Co., Washington, D. C., came in low at $120,361 for this Rock Creek Park job in Washington, only $22 below the second bidder and less than 2% below the high of four bidders.

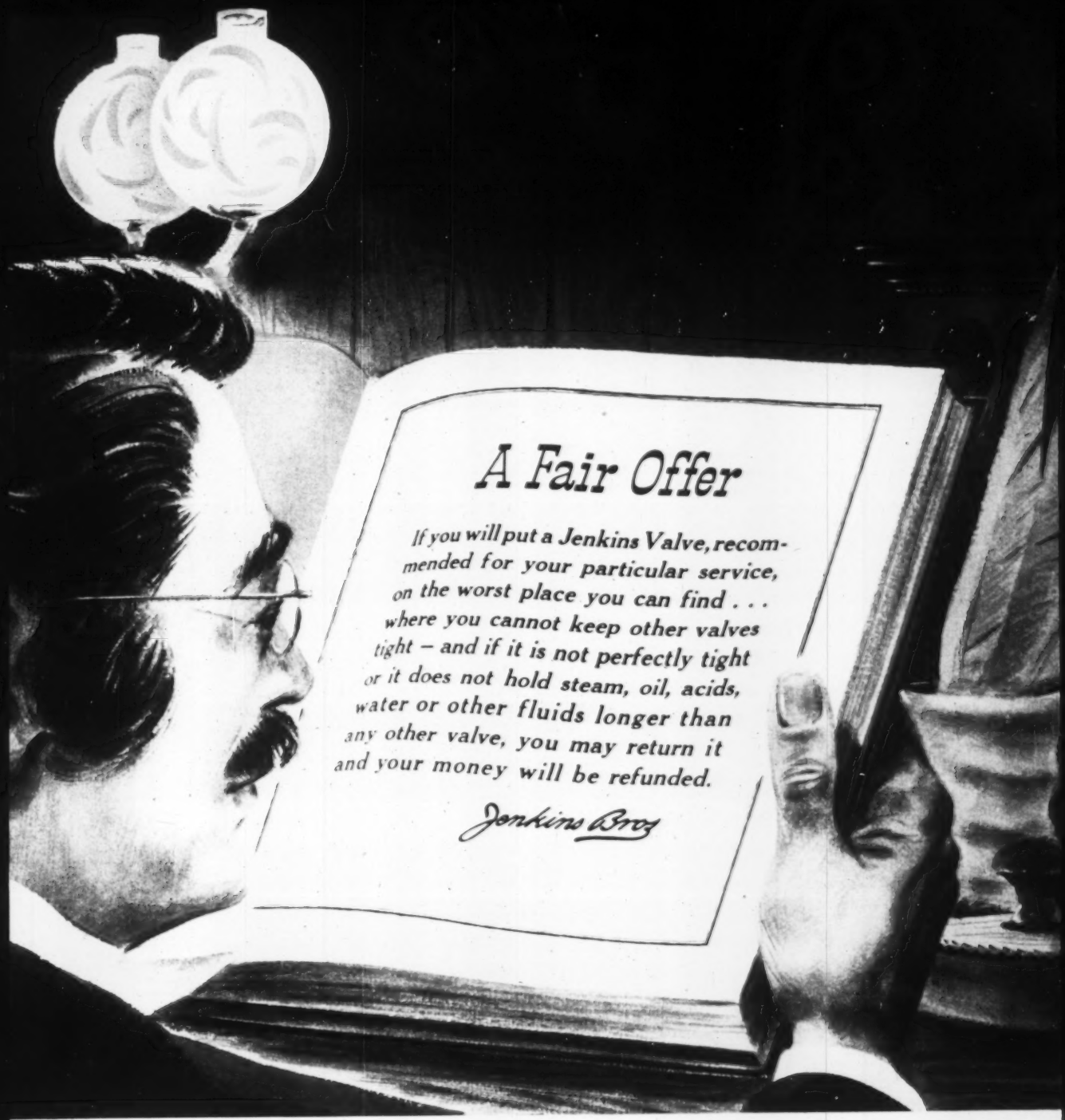
Work is for the Department of Interior, National Park Service, Washington. It includes reconstruction of Morrow Drive and an extension of the amphitheater parking area. An electric and floodlighting system will be installed, and a refreshment stand relocated.

1C	Corson & Gruman Co., Washington, D. C.	$120,361
2	E. E. Lyons Constr. Co. & R. F. Tonblyn Constr. Co., Vienna, Va	120,383
4	F. O. Day Co., Inc., Rockville, Md.	121,573

Bids: 5-7-59

Items	Unit	Quantity	Unit Prices 1C	Unit Prices 2
Excavation, uncl	cy	7,000	$2.30	$2.60
Clear & grub	ac	1.5	750.00	1,500
Trees, 8"-18" caliper remov	ea	8	75.00	75.00
18" caliper & over remov	ea	4	125.00	100.00
Stone walls remov	ls	job	500.00	1,000
Curb remov	lf	250	1.00	1.00
Curb & gutter remov	lf	785	1.00	1.00
Bank run gravel	cy	3,200	4.10	4.50
Concrete walk, 6" t	sy	45	6.50	6.75
Curb, 8"x18"	lf	1,400	2.10	1.90
Curb & gutter, type A	lf	2,380	2.50	2.70
type B	lf	620	2.95	2.70
mountable	lf	2,450	2.45	2.50
Concrete footing	cy	15	55.00	60.00
Asph conc binder course	t	1,700	8.90	9.00
surf course, type C	t	650	9.50	9.00
type D	t	350	9.50	9.00
Catch basin, type D	ea	3	250.00	260.00
type E3	ea	3	300.00	260.00
type E4	ea	4	300.00	260.00
Manhole	ea	1	330.00	325.00
RCP, 12"	lf	120	8.50	8.60
15"	lf	20	9.00	7.10
18"	lf	520	9.50	7.60
24"	lf	40	10.00	9.25
Conc flared end section, 12"	ea	5	65.00	18.00
15"	ea	4	75.00	54.00
18"	ea	1	85.00	58.00
Catch basin adjust	ea	1	75.00	125.00
Manhole adjust	ea	1	55.00	125.00
Convert field drain to junction box	ea	1	125.00	125.00
Catch basin rebuild	ea	1	300.00	250.00
Topsoil, 2"	sy	5,000	0.40	0.40
4"	sy	9,100	0.65	0.70
Seed & mulch	sy	10,500	0.18	0.22
Sod	sy	500	0.55	0.60
Cl A conc masnry face, 8"				
Cmt rubble masonry wall 8" wide	cy	40	75.00	55.00
	lf	55	13.50	4.25
Masonry facing, 8"	sf	500	4.00	3.50
Concrete masonry unit wall, 8"	sf	200	2.75	1.50
post & wood railing	lf	85	7.75	8.00
Wood guardrail	lf	1,675	6.60	4.50
Granite stepping stone instal	lf	50	4.00	7.50
Refreshment stand relocat	ls	job	600.00	750.00
Elec floodlig system	ls	job	5,241	5,658

Commence: 6-29-59. Completion schedule: 90 days
Liquidated damages: $25/day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If you will put a Jenkins Valve, recommended for your particular service, on the worst place you can find . . . where you cannot keep other valves tight – and if it is not perfectly tight or it does not hold steam, oil, acids, water or other fluids longer than any other valve, you may return it and your money will be refunded.
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JENKINS SINCE 1864 Jenkins Bros

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.* truckload del.* per block		CONCRETE Ready Mixe d 1:2:4 del. per cy
	Paper	Bulk	Mortar	Gravel, 1½ In.	Gravel, ¾ In.	Sand	1½ In.	¾ In.	1½ In.	¾ In.	Sand grav.	Lt. wgt. agg.	50 cy & over
Atlanta	$4.33a‡	$3.93a‡	$3.59a‡	$3.10s‡	$3.10s‡	$1.85ls	$2.18s	$2.33s	$1.65r	$1.75r	$0.175o	$0.21o	$13.75g
Baltimore	4.32a	3.91a	3.46a	2.80ja	2.80ja	2.25ja	2.85ja	2.90ja	2.05ja	2.00ja	.18a	.18a	13.50cu
Birmingham	4.23c	3.80cf	.....	2.53ns	2.53ns	2.13ns	2.75s	2.75s	1.65d	1.75d	.18	.18	14.00q
Boston	5.80ip	4.52ap	4.80imp	3.00qs	3.00qs	3.00qs	1.75qs	1.85qs	.....	.....	.23o	.275ao	15.00q
Chicago	4.13ag	3.87ag	3.90/3.95g	3.78ls	3.78lbe	4.13lbs	3.95lbe	3.95lbe	2.25ls	2.25ls	.25ls	.25lbs	13.50s
Cincinnati	4.68c	4.18c	4.18c	2.29‡cu	2.34‡cu	2.44‡cu	2.51‡cu	2.74‡cu	1.80u	1.80u	.20o	.25ao	13.25qr
Cleveland	1.30‡	.....	3.89‡ae	2.25ae	2.10ae	1.75ae	2.70fy	2.70fy	2.20‡fR	2.20‡fR	.....	23f	16.50u
Dallas	3.75a	3.25a	3.63a	2.65ja	2.75ja	1.90‡	2.43	2.63	.....	.....	.....	27	12.50z
Denver	4.79a	4.29a	4.79	1.95‡	2.15‡	1.42‡b	.....	3.00‡z	.....	.....	25	.27ao	11.90
Detroit	4.25a	3.74agq	3.72a	4.50‡abm	4.50‡abm	4.25‡abm	3.75‡abm	3.75‡abm	2.47aqea	2.47aqea	.22u	.25‡au	14.40e
Kansas City	4.23a	3.83a	4.10a	.....	.....	1.85‡a	2.00‡a	2.00‡a	.....	.....	.22a	.26c	14.50
Los Angeles‡‡	5.12ch	4.65ch	5.60c	2.86‡at	2.76‡at	2.41‡at	2.41‡at	2.46‡at	.....	.....	.19f	.305	12.46klz
Minneapolis	4.52a	4.11a	4.08a	2.70‡ae	2.70‡ae	1.60‡ae	3.95‡ae	3.95‡ae	.....	.....	.19q	.....	13.80f
Montreal	3.36‡det	3.11‡det	3.72‡det	1.90‡at	2.15‡at	2.40‡a	1.90‡t	2.15‡t	2.00†	2.00†	.20†	.28ft	10.80ek†
New Orleans	4.06b	3.65b	3.85b	2.61b	2.61b	2.166‡	.....	.....	1.65d	1.75d	.29r	.29	14.00o
New York	4.58aR	4.18aR	3.65aR	.....	3.20bkd	2.30bkd	2.85blb	3.10blb	.....	.....	.265nwo	.32bwo	17.60ay
Philadelphia	4.39‡ae	3.99‡ae	3.51‡e	1.95‡a	1.95‡a	1.55‡a	2.00‡a	2.30‡a	2.25‡a	2.25‡a	.....	.225	13.90z
Pittsburgh	5.65bjk	4.62bj	5.00bjl	2.85‡aqr	2.85‡aqr	3.08‡aqr	2.00‡aqr	2.00‡aqr	2.10w	2.10w	.28r	.28r	15.80z
St. Louis‡‡	4.34a	3.94a	4.04a	3.45‡as	3.30‡as	2.40/3.40‡as	1.75ls	1.75ls	.....	.....	.255‡s	.315‡co	13.65/14.10q
San Francisco	4.34r	3.79r	4.75r	2.02	2.02	2.12	2.17	2.17	.....	.....	.24	.25cl	13.00cw
Seattle	4.22‡a	3.60ag	4.40a	4.25‡bm	4.25‡bm	4.25‡bm	4.50‡bm	4.50‡bm	.....	.....	.26a	.37ca	13.90‡
Toronto	5.00t	5.00a	5.00t	2.40	2.40	2.05	2.40	2.40	2.40	2.40	.26	.275cs	13.75q

‡ Delivered. * Prices incl. dealers discount except as noted. # Add 4% sales tax. ## Add 2% intrastate sales tax. R Revised. † Plus 8% Mun & Prov tax.

CEMENT: *a Less 10¢ disc. 15 days. *b Less 2% disc. 15 days. *c Less 10¢ disc. 10 days. *d 10¢ disc. 20 days. *e Truckload lots. *f Fob mill, add $14.58 to $21.31 per car switching charges. *g fob mill + freight. *h LCL. *i Less 2% disc. 10 days. *j Truck lots, fob yard. *k 100 bag lots *l over 150 sacks. *m Sold in bags only. *n Less 5% disc. 30 days. *o Plus 50¢ for Sat. del. *p 5-8 ton truckload. *q F.o.b. mill *s In bags & bbl. Only

SAND, GRAVEL, STONE & SLAG: *a Truck lots. *b Per cu. yd. *c 5 tons up. *d Less 5¢ disc. 10 days. *e Less 2% disc. 10th. *f Less 2% disc. 15th. *g Less 5% for cash. *h Less than 5 tons. *j F.o.b. quarry. *k Barge lots asd. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars *q F.o.b. yard. *r less 5% disc. 15th. *s Less 2% disc. 10 days. *t Less 10¢ disc. 10 days. *u Less 5¢ disc. 10 days. *v Less 2% disc. 15 days. *w Less 10¢ disc. 15 days. *x Incl. 35¢ switch. charge. *y F.o.b. dock. *z 5-8 tons. *aa Less 5% disc. 15 days. *bb Less 2% 25th of month

CONCRETE BLOCK: *a Cinder. *b Waylite. *c Haydite. *d Celocrete. *e 5⅛ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *j F.o.b. plant San Rafael. *m F.o.b. yard. *n 8 x 8 x 16. *o Less 2% disc. 10 days. *p Less 2% disc. 10th. *q Less 5% disc. 10th. *r Less 2% disc. 15 days. *s Less 2% disc. cash. *t Siporex. 7 x 8 x 16. *u Less 5% disc. 10 days. *v Less 12½% disc. 15th. *w Eff. 1/1/57.

READY MIXED CONCRETE: *a 6 cu yd or over del. Man. *b 25 cu yds or more. *c 10-100 cy. *d 1-3 mi. zone add 15¢ for ea. add'l 1-mi. zone. *e 2,000 lb comp. *f 2,500 lb. comp., less 5% disc. 30 days. *g Less 25¢ disc. 15 days. *h Less 50¢ for cash. *i 5% off for cash. *j 2% off for cash. *k Federal tax included. Add 8% mun. & prov. tax. *l 1:2½:3½ base price. *m F.o.b. yard. *n Plus escalator clause. *o Less 2% disc. 15 days. *p Less 50¢ disc. 15 days. *q Less 2% disc. 10 days. Add 50¢ per zone. *r 2000 wgt. *s Less 5% disc. 10 days. *t Incl. 50¢ heating. *u Less 2% disc. 15th. *v Sat. del. +50¢. *w 10-100 cy. *x Del in zone 20-B. *y less 25¢, 10 days. *z less 1% in 30 days.

CURRENT MAXIMUM PRICES AT CEMENT MILLS: Subject to 10¢ discount, 15 days. For paper bags add 40¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.45#	Buffington, Ind	$3.40#	Steelton, Minn	$3.45#	Muskegon, Mich	$3.45#	Toledo, O	$3.45#
Clinchfield, Ga	3.45#	Independence, Kan	3.25#	Leeds, Ala	3.30#	Saginaw, Mich	3.45#	Milwaukee, Wis	3.50#
Kingsport, Tenn	3.45#	Hannibal, Mo	3.35#	Duluth, Minn	3.45#	Wyandotte, Mich	3.45#	Green Bay, Wis	3.50#
West Des Moines, Iowa	3.50#	Northampton, Pa	3.50#	Hudson, N. Y.	3.50#	Buffalo, N. Y	3.55#	Ironton, O	3.45#
Nazareth, Pa	3.50#	Universal, Pa	3.60#	Alpena, Mich	3.35#	Oswego, N. Y	3.60#	Montreal City	2.56
Bath, Pa	3.50#	Waco, Tex. (+ 10¢ tax)	3.35#	Detroit, Mich	3.45#	Cleveland, O	3.50#	W. Winfield, Pa	3.60#
Lesley, Pa	3.50#	Giant, S. C	3.45#	Howes Cave, N. Y	3.50#	Alsen, N. Y	3.50#	Security, Md	3.50#

Price guaranteed through December 31, 1959

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

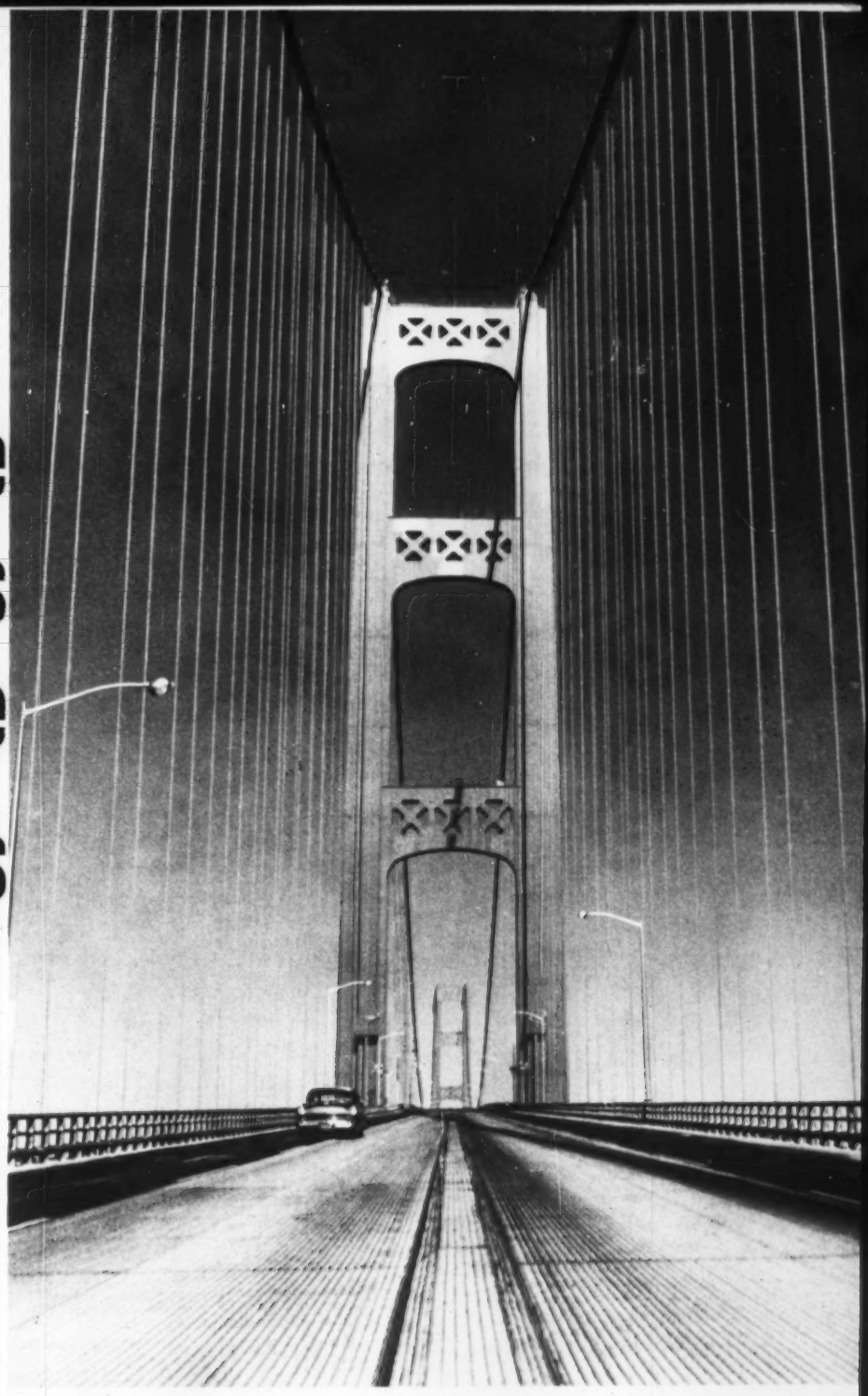
	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT—MC per ton		ROAD OIL Per gal.	ASPHALT EMULSION RSI Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	e	e	e	$28.60PS	$45.00PS	$0.2740PS	$0.235S	$0.1375wS	$0.245wS	$0.1325S	$0.1325S	$0.245
Baltimore	e	e	e	21.00t	.....	.09t	0.18t	.09twE	.18twE	.095t	.10t	0.19t
Birmingham	.....	66.00i	.....	25.12	25.69O	.1069	0.1093O	.1162w	.1188Ow	.1006O	.1069	0.1093O
Boston	.....	.....	.....	22.00apS	46.00apS	22.00anS	46.00anS	.165awF	.22awF	.14aOR	.15OR	.....
Chicago	150.00‡a	95.00‡ab	3.95/4.00‡aj	22.00b	32.00b	20.40bs	30.40bs	.106wH	.18wH	.088	.....	.....
Cincinnati	.....	.....	.....	26.00SU	.....	26.00ff	.....	.1165wSU	.....	.109	.1265	.....
Cleveland	.....	89.50‡d	6.30	26.00A	.....	26.00eA	.....	.1115weAF	.....	.....	.1180A	.21A
Dallas	e	40/80p	e	26.90	48.35	.1138	.1983	30.50	52.45	.1100	.1138	.1983
Denver	.....	62.00a	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	116.00	.....	30.90R	.....	31.00nR	.....	.1342wIR	.....	.1000	.....	.28
Kansas City	e	e	e	18.00cl	.....	18.00cs	.....	.0825cwJ	.....	.079e	0.125e	.....
Los Angeles‡	e	e	e	21.50dmx	.....	21.50dmx	.....	23.00dKx	.....	22.00dmm	23.90jXv	26.80jXv
Minneapolis	.....	.....	3.73h	25.00	.....	26.00r	.....	10.115re	.....	0.105	.13756b	.....
Montreal	e	e	e	30.50n	43.60n	.167n	211n	17.80nwE	22.20nwE	.155n	.242n	.27nX
New Orleans	e	e	e	20.00e	.....	20.00es	.....	.095ewe	.....	.085wB	.095wBL	.1905wB
New York	.....	.....	3.70f	23.99mO	45.94mO	23.99stO	45.94stO	10.61wF	20.01wF	.....	10.68u	20.11u
Philadelphia	175/185	.....	.....	18/21U	.....	18/21U	.....	0.085/.10FU	.....	0.085/.10U	.....	.....
Pittsburgh	60.00k	95.00n	6.35n	31.20ss	.....	31.20ss	.....	.1403‡S	.....	.1425	.1403s	.....
St. Louis‡‡	.....	.....	.....	19.74f	21.19	.1825f	.1825	.080f	.092fw	0.165f	.1825O	.30R
San Francisco	.....	70.00	.....	24.50qdd	41.50qdd	24.50qkndd	41.50qkndd	24.50qNdd	43.00qNdd	25.25qWdd	25.50qXdd	2063qXdd
Seattle	.....	.....	.....	25.00s	40.00A	25.50sscc	.....	26.50KE	.....	24.25hvF	23.50hsX	45.10hsX
Toronto	.....	135.50‡t	4.50f	41.50	61.28ee	0.2075	0.2773ee	0.222w	0.2704wee	0.233	0.218Zee	.273Zee

‡ Delivered. # Add 4% sales tax. ## Add 2% intrastate sales tax. R Revised.

PAVING BRICK & BLOCK: *a Less 2% disc. 10th. *b 3 x 3½ x 8. *c 2¼ x 8¼ x 4. *d Truckload lots. *e Not used. *f 2" interior 6 lb tr. *g Less $1 Mdisc. 15th. *h 2" tr, 8 lb. *j 3 x 3⅝ x 8½. *j 2½", 6 lb. tr. *k Used. *l Redshale. *m Pine; oak $6.57. *n Truck del. *o Less $1 M disc. 15 days. *p Used: $40; new: $80.

ASPHALTS: *a F.o.b. refinery, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Segundo. *e F.o.b. Baton Rouge. *f F.o.b. Hartford, Ill. *g F.o.b. refinery, Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refinery, Baltimore. *j F.o.b. refinery, Inglewood, Calif. *k 50-110 penetr. *l Less than 100 penetr. *m 40/300 penetr. *n F.o.b. refinery, Montreal. Fed. tax included; add 8% for mun. & prov. *o Drums not avail. Shipped in steel bbl. *p 80/70 penetr. *r In customer's drums. *s Shipped in drums, per drum. *t 150 300 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks *y F.o.b. Oakland. *z F.o.b. Edmonds. *A F.o.b. refinery, Cleveland, *B F.o.b. Destrehan, La. *E RC. *F Also RC. *G Also MS *H RC 0-5 incl. *I MC 4. *J MC, RC $0.095. *K MC 3, 4, & 5. *L MS. *M MC 1-5, RC 1-5, $0.0918. *N MC 3. *O Truck-load. *P F.o.b. refinery, Atlanta. *Q F.o.b. Eldorado, Ark. *R Delivered within 50 mi. *S Less 2% disc. 10 days, net 30. *T Less 1% disc. 10 days. *U F.o.b. refinery. *V Less 2% disc. 15 days. *W SC 2. *X RS 1. *Y SC 1. *Z Incl. 10¢ Sales Tax. *aa SC 3, 4, & 5. *bb RS 3. *cc In used drums. *ddl ess disc of $1 ton. ee 45 Imp. gal. drums *ff 60-150 penetration

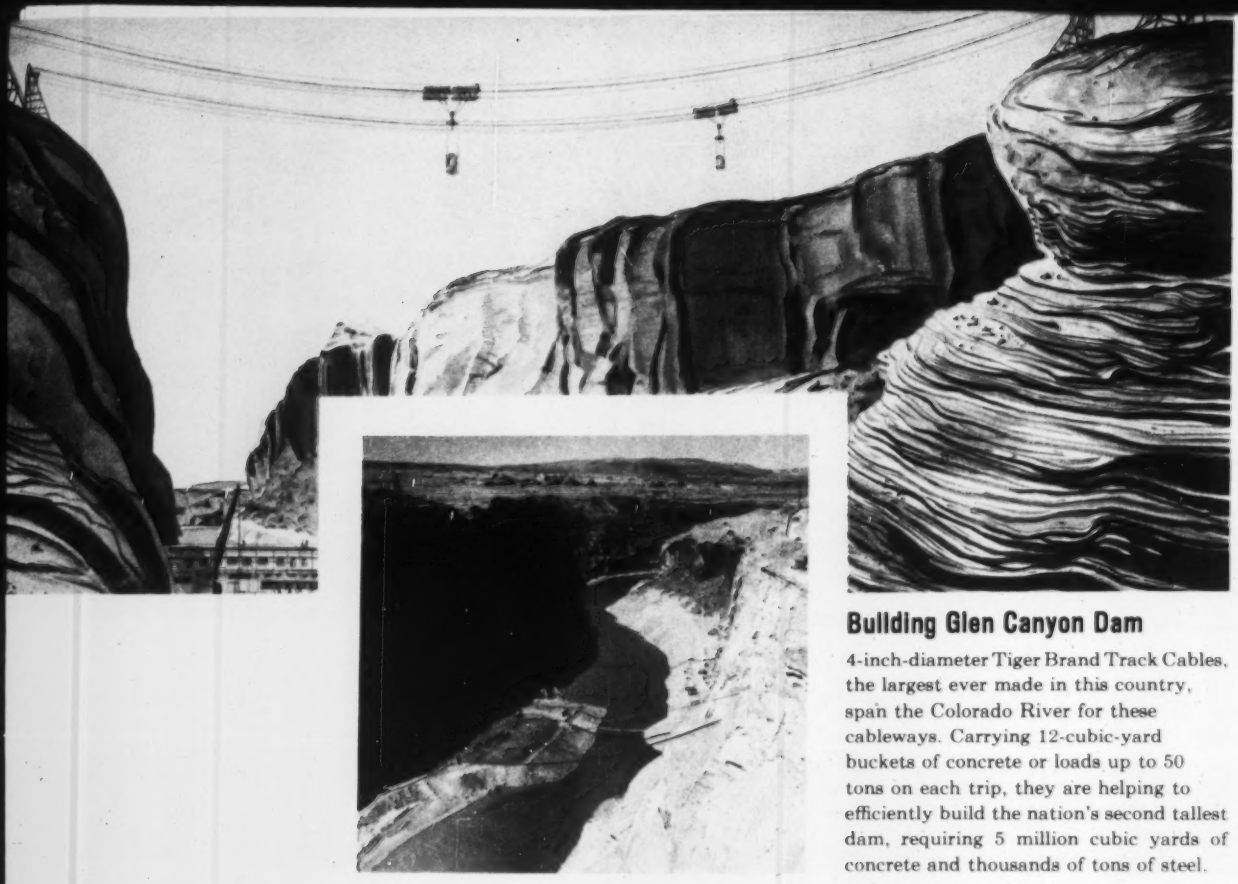
five famous rope jobs



The Mighty Mackinac

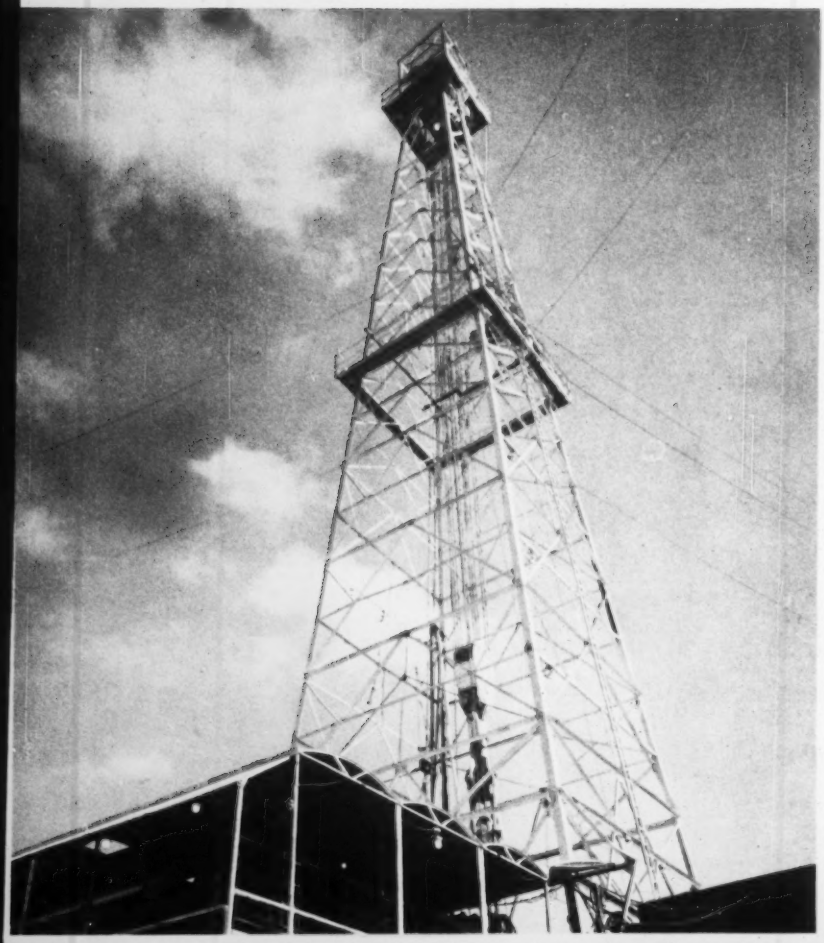
World's longest suspension bridge. The main cables took 42,000 miles of wire—enough to go almost twice around the world. The roadway is supported by 125,000 feet of USS Tiger Brand Bridge Rope. Both wire and wire rope were made by American Steel & Wire.

(SEE FOLLOWING THREE PAGES)



Building Glen Canyon Dam

4-inch-diameter Tiger Brand Track Cables, the largest ever made in this country, span the Colorado River for these cableways. Carrying 12-cubic-yard buckets of concrete or loads up to 50 tons on each trip, they are helping to efficiently build the nation's second tallest dam, requiring 5 million cubic yards of concrete and thousands of tons of steel.



Drilling for oil 24,004 feet down

The search for oil goes deeper every day and stronger, tougher Tiger Brand Wire Rope is lifting the tremendous weight of drill pipe and casing necessary to drill the well. This is one of the world's deepest.

Harnessing Niagara's Power

The new power plant at Niagara Falls will generate 2,190,000 kilowatts of electricity, and will be the Free World's No. 1 producer of hydroelectric power. Huge shovels, rigged with Tiger Brand Wire Rope, are tearing away the rocks to make room for the power plant.

Digging 100 tons a minute

The world's largest strip mining shovels, that scoop 70 cubic yards at a bite, are rigged with Tiger Brand Wire Rope and Boom Supports. The same high-quality engineering goes into all types of Tiger Brand Wire Rope.

Why USS Tiger Brand is America's No. 1 Wire Rope

The pictures show only five of the famous projects where Tiger Brand Wire Rope is performing its job quietly and safely. You will see it helping to build our new highway system, mining coal, drilling for oil or hauling shrimp from the ocean bottom.

Wire rope provides the steel muscles that do the world's work. It lifts the ladles of molten steel . . . dredges the rivers . . . snakes logs through the forest. There is no important industry that does not depend in some way on the strength and quality of Tiger Brand Wire Rope.

On the last page of this advertisement you will see some of the research, engineering and manufacturing facilities that are necessary to produce this top-quality wire rope. To get the complete story, write for our descriptive book. American Steel & Wire, Room 842, 614 Superior Ave., N.W., Cleveland 13, Ohio.

USS and Tiger Brand are registered trademarks

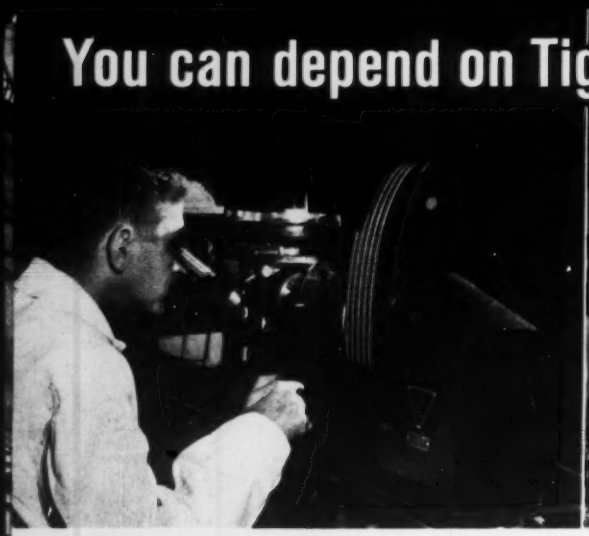
USS

American Steel & Wire Division of United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors
United States Steel Export Company, Distributors Abroad

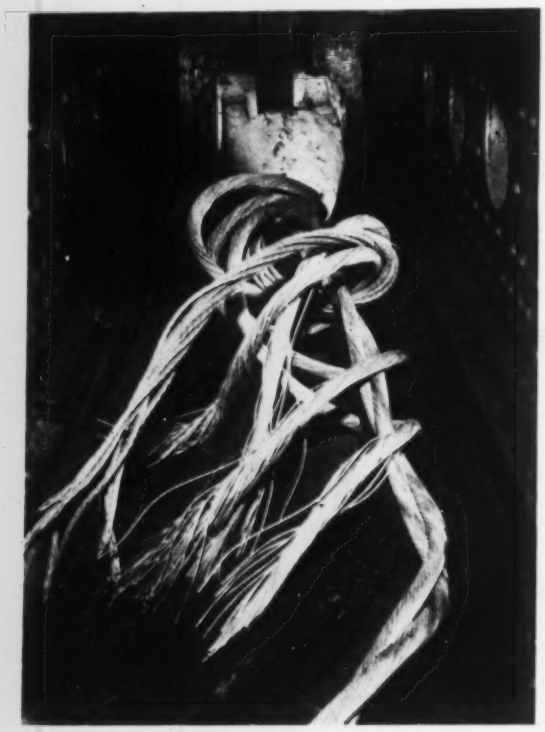
(TURN TO NEXT PAGE)

You can depend on Tiger Brand



Quality Control
Grain structure is examined at high magnification by means of this equipment. This is one step in AS&W's quality control program, which extends from raw material through finished product.

How many bends make a break?
Our engineers use this fatigue test to find out how long a rope can stand up under constant bending and heavy loads. Tiger Brand Wire Rope has been constantly improved because of such tests.



Testing to destruction
This Tiger Brand Galvanized Bridge Suspender Rope had to meet a specified strength of 730 tons. It was pulled until it snapped—far exceeding the specified strength requirements. Another test to assure Tiger Brand's top performance and long service.

Why Tiger Brand is your best buy

1. It is made by a company that maintains the most complete research and manufacturing facilities in the steel industry.

2. It is designed by one of the country's most capable staffs of wire rope engineers. It is serviced by thoroughly experienced field representatives always ready with their assistance.

3. Every type of Tiger Brand Wire Rope is designed for specific applications. You get the *right* rope for the job.

4. It is made by one company, U. S. Steel, and every step of production, from ore to finished product, is carefully controlled and supervised to guarantee one high standard of quality.

5. Tiger Brand Wire Rope is manufactured by the foremost single producer in the country.

USS

American Steel & Wire Division of United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
Tennessee Coal & Iron Division, Fairfield, Alabama, Southern Distributors
United States Steel Export Company, Distributors Abroad

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—SLC

▲ Que., Montreal—FACTORY, etc.—Avon Products of Canada Ltd., 1040 St. Catherine St. W. soon lets contract factory and offices in Pointe Claire industrial park, $4,000,000. Luke, Little & Thibaudeau, 1515 Crescent St., archts. CD 12/3.

BUILDINGS—LB & CA

▲ E & F Constr. Co., 94 Wells St., Bridgeport, Conn., CA $1,025,000, 4 story, brick NOVITIATE, N. Benson Rd., FAIRFIELD, CONN. Sisters of Notre Dame De Namur No. Benson Rd., Fairfield, Conn. Bids July 16, awarded July 23. CD 6/30.

Meadowood Corp., Pinecrest Drive, Southington, Conn., Owner Builds, $960,000, 96 HOUSES, "Meadowood" Second Section, South End Rd., SOUTHINGTON, CONN. CD 9/19/57.

▲ Raymond Bradley, Andrews St., Southington, Conn., Owner Builds, $1,175,000, 47 HOUSES, "Moore Hill", Andrews St., SOUTHINGTON, CONN.

▲ The Lustaber Co., 110 Wellington Drive, Stamford, Conn., CA $1,468,935, APARTMENT, STAMFORD, CONN. Three Elt Holding Corp., c/o Mariano Schimenti, archt. 118 E. 25 St., New York, N. Y. Awarded July 23.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—LB & CA

▲ T&T Contg. Corp., 4814 Glenwood Rd., Brooklyn, N. Y. LB $5,524,050, combined Contr. 1, 2 and 3. LB $2,074,373, Contr. 1; LB $1,725,935, Contr. 2; LB $1,960,848, Contr. 3, storm sewer, appurtenances, 93rd Ave. from Springfield Blvd. to Cross Island Parkway westerly service roadway, etc., Third Ward, Queens Boro, NEW YORK. President Queens Boro, Room 228, Boro Hall, 120-55 Queens Blvd., Kew Gardens 24, N. Y. Bids July 22. CD 7/6.

▲ Aberthaw Constr. Co., 60 State St., Boston, Mass., CA Est. $15,000,000, Freedomland Recreation Park, Hutchinson River, Hutchinson River Parkway, Bruckner Blvd. and New England Thruway, NEW YORK, N. Y. International Recreation Corp., c/o Marco Engr. Co., 1275 N. Sweetzer St., Los Angeles, Calif. Cabot, Cabot & Forbes Co., 60 State St., Boston, Mass., engr. CD 5/27, under CA, Commercial Buildings.

▲ NEW JERSEY—State Hy. Dpt., 1035 Parkway Ave., Trenton. Bids opened 7/15:

Franklin Contg. Co., U.S. Hy. 46, Little Falls, N. J., LB $7,367,147 (8 bidders), constr. 1.8 mi. section Rte. 21 Freeway, Nutley and Clifton, Essex and Passaic Counties. CD 6/18.

BUILDINGS—LB & CA

▲ B. J. Lucarelli & Co., McCarter Hy., Newark, N. J., LB $1,118,000, general contract HIGH SCHOOL, Madison Twp., OLD BRIDGE, N. J. Bd. Educ., Madison Twp., Old Bridge, N. J. Merchant, Seidel & Hickey, 1 Elm Row, New Brunswick, N. J., archts.

▲ John Tester & Son, Inc., Clinton, Md., LB $2,365,534 (7 bidders), Aspen HIGH SCHOOL, Wheaton, ROCKVILLE, MD. Montgomery Co. Bd. Educ., Rockville, Md. Bids July 23. CD 7/10.

SOUTH

HEAVY CONSTRUCTION—LB & CA

▲ Harrison Constr. Co., Alcoa, Tenn., CA Est. $1,000,000 raising Morgan Falls Dam Chattachoochee River between Atlanta and Buford Dam, ATLANTA, GA. Georgia Power Co., 52 Fairlie St. N.W. and Atlanta Water Works Bd., City Hall, Atlanta, Ga. CD 6/30.

▲ ALABAMA—State Hy. Dpt., Montgomery. Bids opened 7/17:

Ala.—Foster & Creighten Co., American National Bank Bldg., Nashville, Tenn., LB $1,722,382, base and concrete pavement 6.205 mi. Interstate Rte. 65 from Mariot Creek No. to Ala. Hy. 691, Cullman Co.;

Ala.—R. B. Tyler Co., 1446 Levering, Louisville, Ky., LB $884,993, second stage paving and reworking base, 6.5 mi. Southern bypass between U. S. 31 and U. S. 231, Montgomery Co.;

Ala.—George A. Dozier, 1444 Wares Fy Rd., Montgomery, Ala., LB $417,306 grading, drainage, pavement and bridge culvert, 0.455 mi. U. S. 80 at Three-Mile Branch, Montgomery Co. CD 7/8.

▲ LOUISIANA—State Dpt. Hys., Baton Rouge.

Philip R. Farnsworth & Co., Inc., Box 752, New Orleans, La., CA $2,889,382, portland cement pavement and elev. expressway structure, 0.396 mi. S.P. 817-34-10, FED 1-410-3 (4) 162, Baton Rouge Expressway, Stage 4, Boyd Ave. N. Blvd. Rte. 1.410, East Baton Rouge Parish. Bids June 17, awarded June 26. CD 6/24, under LB.

▲ LOUISIANA—State Dpt. Hys., State Office Bldg., Baton Rouge. Bids opened 7/22:

Hall & Holland, Box 38, Montgomery, La., LB $2,674,647 grading, drainage structures, bridge and overpass structures 8.719 mi. Egan-Crowley Hy., Rte. 11-10, SP. No. 450-04-08, FAP No. 1-10-2(4) 71, Acadia Parish. CD 6/25.

▲† T. L. James, Ruston, La., LB $1,095,678, paving Barksdale Air Force Base Inv. 60-1 SHREVEPORT, LA. U. S. Eng., P. O. Box 867, Little Rock, Ark. Bids July 22. CD 7/1.

▲ KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort.

Ralph Myers Contr. Corp., P.O. Box 230, Salem, Ind., CA $2,891,743, (15 bidders) high type surf. 5.225 mi. Interstate I 75-7(11) 151, F 174(13), and S 301(4), Grant Co. Bids July 10. Awarded July 21. CD 7/16, under LB.

BUILDINGS—LB & CA

▲ Southeastern Constr. Co., 1121 Quarrier St., Charleston, W. Va., LB $1,404,000, Charleston General HOSPITAL addn., CHARLESTON, W. VA. Bd. Trustees Charleston General Hospital, Charleston, W. Va. Bids July 22. CD 5/14.

J. S. Stephens & Sons, 902 Rome Ave., Box 1849, Tampa, Fla., LB $930,000 (12 bidders), Gordon Keller SCHOOL of NURSING, Columbia Dr., TAMPA, FLA. City P. Wks. Dpt., City Hall, Tampa, Fla. Joseph C. Russello, 612 Stovall Professional Bldg., Tampa, Fla., structural engr. Charles T. Healy & Assocs., 104 Jackson St., Tampa, Fla., mech. engrs. Bishop & Johnson, Inc., First National Bank Bldg., Tampa, Fla., electrical engr. Bids July 21. CD 7/8.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ O., Struthers—BA 8/28—City, Dir. P. Service & Safety, City Hall. Contract No. 2, sewage treatment plant, incl. primary treatment plant, main bldg., preaeration and grit removal tanks, primary tanks, digestion tanks control bldg., sludge holding tanks and appurtenances. Plans deposit $30; Contract 2A, main intercepting sewer and plant outfall sewer; Contract 2B, Yellow Creek Diversion sewer and force main, Bridge St. Intercepting sewer and lift station; Contract 2C, State St. Intercepting sewer, lift station and force main, Lower Broad St. Lift Station and force main. Plans deposit $25. Floyd G. Browne & Assocs., 125 W. Church St., Marion, consult. engrs. CD 11/10.

HEAVY CONSTRUCTION—LB & CA

▲ ILLINOIS—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield. Bids opened 7/24:

Ill.—Zimmerly Constr. Co., Marshall St., Paris, Ill., LB $1,092,484, (3 bidders), concrete paving 2.9 mi. Lincoln Ave., Charleston FA 17, Coles Co.;

Ill.—Huckaba Constr. Co., P. O. Box 267, Mattoon, Ill., LB $1,097,988, (3 bidders), concrete paving 2.86 mi. on 6th St., Mattoon, FA 17, Coles Co.;

Ill.—Gus K. Newberg Co., 2040 N. Ashland, Chicago, Ill., LB $4,519,588, (7 bidders), paving 3.19 mi. southwest of Interstate Ill. 83 with Tollway south of Hinsdale on US 66, DuPage and Cook Counties;

Ill.—Chatham Paving Co., 8452 S. State St., Chicago, Ill., LB $1,295,883 (6 bidders) paving 0.42 mi. Northwest Expressway, Chicago, Cook Co.;

Ill.—Peter J. Crowley Co., P.O. Box 144, Maywood, Ill., LB $1,798,664 (11 bidders), concrete paving, retaining walls 0.56 mi. Congress St. Expressway southwest Oak Park, Cook Co.;

Ill.—Hollembeak Constr. Co., 726 S. 22 St., Quincy, Ill., LB $578,642 (3 bidders) base course 2.61 mi. FA 56 north of Quincy, Adams Co.;

Ill.—Charles Ind Co., R. R. 1, Rockford, Ill., LB $666,532 (4 bidders) paving FA 188 in and near South Beloit, Winnebago Co.;

Ill.—McCann Co., Inc., P. O. Box 201, Springfield, Ill., LB $739,936 (3 bidders) c. conc. paving, base course, resurf. 3.19 mi. Ill. 4 Mt. Clare to Staunton Macoupin Co.;

Ill.—H. H. Mass Constr. Co., Huntley Rd., Algonquin, Ill., LB $989,798, (7 bidders), base course 4.43 mi. FA 4 and 109, Rushville to Beardstown, Schuyler Co.;

Ill.—Calumet Coal Co., H. G. Goelitz and Municipal Paving Co., Cicero, Ill., LB $1,244,828, (8 bidders), base course 4.09 mi. US 12 and 20 in Oak Lawn and Evergreen Park, Cook Co.;

Ill.—Quad City Constr. Co., 644-25th St., Rock Island, Ill., LB $634,751, (3 bidders), paving Ill. Rte. 2, Sterling, Whiteside Co.;

Ill.—White City Electric Co., 1813 W. Jackson, Chicago, Ill., LB $415,513 (4 bidders) lighting 4.45 mi. Northwest Expressway Chicago, Cook Co. CD 7/9.

BUILDINGS—LB & CA

▲ Baystone Constr. Co., Inc., State Rd. 3, S., Muncie, Ind., CA, 1 story, 185,000 sq. ft. PACKING AND SHIPPING CENTER, ANDERSON, IND. Delco-Remy Div. General Motors Corp., 2401 Columbus Ave., Anderson, Ind.

▲ Bethlehem Steel Co., 701 E. 3 St., Bethlehem, Pa., CA fab. and erect structural steel, STEEL FINISHING STRIP MILL, Ogden Dunes, CHESTERTON, IND. Midwest Steel Corp., Div. of National Steel Corp., Grant Bldg., Pittsburgh, Pa. CD 6/18.

▲ George J. Beemsterboer, Inc., 11723 Vale Ave., Chicago 28, Ill., CA Total Est. $27,000,000, site preparation for Zero GRADIENT SYNCHROTRON, LEMONT, ILL. Atomic Energy Comm., Bailey and Bluff Rds., Lemont, Ill. CD 4/23/58.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲ Neb., Omaha—BA 8/11—City, City Hall. Phase 1, Part A, North Interceptor Sewer extending from Sharon Dr. and Minne Lusa Ave. intersection N.W. to 29th St. and Bridge St. intersection and vicinity, $1,000,000. CD 1/5.

BUILDINGS—BA

▲ Tex., Terrell—WARD—BA 8/14, Bd. Texas State Hospitals & Special Schools, 1100 W. 49th St., Austin. 3 story, brick, tile, concrete, steel ward, $1,174,000. Plans deposit $40. Wilson, Patterson & Assocs., 601 Bailey St., Fort Worth, archts. CD 7/7, under LB.

▲ Iowa, Fort Dodge—POST OFFICE, etc.—BA 8/25—General Services Admin., 2306 E. Bannister Rd., Kansas City 10, Mo., post office and court house, Appr. No. 47x1147, Proj. No. 13903. Plans deposit $100. CD 9/18.

▲ Mo., St. Louis—CLINIC and ADMINISTRATION—BA 8/25, Missouri State Planning & Constr. Office, 100 State Capitol Bldg., Jefferson City, clinic and admin. bldg., St. Louis State Hospital, 5400 Arsenal St. Over $5,000,000. Plans deposit $300. Marcel Boulicault, Inc., 411 N. 7 St., archt. CD 5/17/57.

HEAVY CONSTRUCTION—LB & CA

▲ MINNESOTA—State Hy. Dpt., Capitol Approach, St. Paul. Bids opened 7/24:

Minn.—Ashbach Constr. Co., 1910 W. County Rd. C, St. Paul, Minn., LB $358,183 (5 bidders), gravel base, plant-mixed bit. base and surf., and concrete paving 0.4 mi. at 24th Ave. S. interchange, and 0.5 mi. between Nicollet Ave. S. and 12th Ave. S. Richfield and Bloomington, Hennepin Co.; LB $96,267 (6 bidders), gravel base, concrete base and hot b. conc. surf. 0.4 mi. between Sixth Ave. NW and Ninth Ave. NW in New Brighton, Ramsey Co.;

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000, industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	Mississippi to Rockies
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

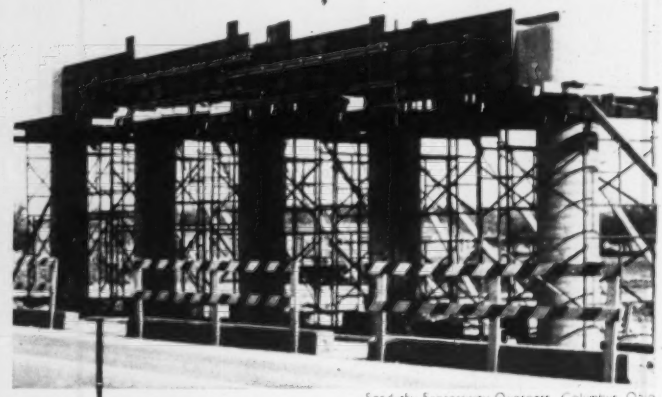
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

Form round concrete columns of different heights FASTER!



Sandusky Expressway Overpass, Columbus, Ohio
Engineer: Burgess & Niple
Contractor: Visintine Construction Company

Speed construction with easy-to-saw

SONOCO Sonotube® FIBRE FORMS

For the piers of this expressway overpass, concrete columns of varying heights were formed by 36" I.D. SONOTUBE Fibre Forms. Since they can be sawed at the job to required lengths, SONOTUBE Fibre Forms quickly solve forming problems on projects of this type. They are easily cut to the proper height, need only minimum bracing, and can be simply tied in to other formwork.

For bridges, overpasses, buildings, schools, parking garages, or wherever round concrete columns are to be formed, SONOTUBE Fibre Forms can do the job faster and more economically than any other method . . . they save contractors time, labor, and money!

Choose the SONOTUBE Fibre Form that best suits your job requirements:

Seamless—premium form for finished columns
"A" Coated—standard form for exposed columns
"W" Coated—for unexposed or unfinished columns
Encasement Forms—for encasing existing pillars, posts, piles, etc. with concrete.

Order Sonoco SONOTUBE Fibre Forms in sizes from 2" to 48" I.D., in specified lengths or standard 18' shipping lengths. Distributors from coast to coast.

SONOTUBE fibre forms are easily tied in with other forms

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LA PUENTE, CALIF.
MONTCLAIR, N. J.
AKRON, INDIANA
LONGVIEW, TEXAS
ATLANTA, GA.
BRANTFORD, ONT.
MEXICO, D. F.

4085

SONOCO
Construction Products
SONOCO PRODUCTS COMPANY

Minn.—D. H. Blattner & Sons, Albany, Minn., LB $1,140,911 (6 bidders), sand-gravel sub-base, gravel base, road-mixed bit. base, plant-mixed bit. surf., gravel shoulders and bridges 8.8 mi. between S. of South Jct. TH 23 at Mission Creek and S. of North Jct. TH 23 in Sandstone, Pine Co. CD 7-9.

▲† Western-Knapp Eng. Co., Div. Western Mfg. Co., 650 5th St., San Francisco, Calif., LB $5,064,170, power structures, intake superstructures, consisting completion rein.-con. power intake control structures located above the dam in reservoir pool at upstream end of 7 power tunnels incl. (A) removal of dike, 213,000 cu. yd. (B) 45,900 cu. yd. concrete (C) 5,700,000 lb. reinforcing steel (D) 4,610 lin. ft. waterstop (E) 423,000 lb. misc. metals (F) mechanical sys. (G) electrical sys., Oahe Reservoir Proj. near Pierre, ENG-25-066-59-142, SOUTH DAKOTA, U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids July 23. CD 6-15.

▲† Ace Constr. Co., 8711 Shamrock Rd., Omaha, Neb., LB $1,004,028, est. $902,343, Soldier Creek Diversion Unit, Section 4, near Topeka, CIVENG-23-028-59-122, KANSAS, U. S. Eng., 1800 Federal Office Bldg., Kansas City 5, Mo. Bids July 23. CD 6-25.

▲ TEXAS—State Hy. Comn., Austin. Bids opened 7-22.

Tex.—Cage Bros., 6959 San Pedro St., San Antonio, Tex., LB $145,516, base, surf. 8.577 mi. Hy. FM 2183, Proj. R 2328-2-2, Mitchell and Howard Counties, CD 6-26; LB $1,709,458, base, surf. 4.507 mi. Hy. I.H. 20, Proj. I 20-2 (26) 235, Nolan Co., CD 7-1;

Tex.—Luce Contg. Co., P.O. Box 1794, Vernon, Tex., LB $321,711, shoulders, hot mix b. conc. 6.313 mi. Hy. U.S. 281, Proj. C 249-3&4, 18 & 16, Archer Co.

Tex.—Dean Ward Co., New Braunfels, Tex., LB $682,877, base, surf. treat 8.788 mi. Hy. U.S. 281, Proj. C 253-1-18, etc., Blanco Co.;

Tex.—C. F. Lytle Co., P.O. Box 1024, Aransas Pass, Tex., LB $772,278, base, hot mix b. conc. 9.392 mi. Hy. U.S. 69, Proj. C 158-1-23, Runnels Co.;

Tex.—Texas Bitulithic Co., P.O. Box 10365, Dallas, Tex., LB $744,935, concrete base, b. conc. 5.998 mi. Hy. U.S. 80, Proj. U 496 (8) U 43 (2) Tarrant Co.;

Tex.—Allen Keller Co., Box 393, Fredericksburg, Tex., LB $461,874, flex. base, b. conc. 13.429 mi. Hy. St. 27, Proj. C 142-2-12, Kerr Co. all foregoing. CD 7-1.

▲ MONTANA—State Hy. Comm., Helena.

Mont.—McLaughlin, Inc., Ford Bldg., Nilson-Smith Constr. Co., 800 2nd S., S. Birch, Inc., & S. Birch & Sons Co., 1002 15 N., Great Falls, Mont., CA $2,629,104, gravel, surf. and seal 8.3 mi. Great Falls-Vaughn Interstate Rd., Cascade Co.;

Mont.—Wickens Bros., Suffolk, Mont., CA $353,368, grade, gravel surf. 4.22 mi. Armells-Creek-Hays-Harlem Rd., Phillips Co.;

Mont.—United Constr. Co., Miles City, Mont., CA $194,348, grade, gravel, constr. 200 ft. treated timber bridge 7 mi. Carlyle West and North Rd., Wibaux Co.;

Mont.—Dillsworth Constr. Co. & Maronic Constr. Co., Helena, Mont., CA $355,006, grade, gravel, surf., seal, 7.26 mi. Helena-Fiesher Pass-Lincoln Rd., Lewis & Clark Co. Grand total $3,531,826. Bids July 22. CD 7-16.

BUILDINGS—LB & CA

▲ The Austin Co., 16112 Euclid Ave., Cleveland, O., CA $1,250,000, 2 story STORE, off Pioneer Dr., ABILENE, TEX. Montgomery Ward & Co., 290 Cypress St., Abilene, Tex. CD 7-24.

▲ Rose Constr. Co., 1121 Walnut St., Abilene, Tex., CA Est. $1,000,000, 2 story, brick, steel DEPARTMENT STORE, ABILENE, TEX. Thornton's Department Store, 4th and Oak Sts., Abilene, Tex. CD 7-24.

Ross E. Cox, 3100 Tampleton Gap Rd., Colorado Springs, Colo., CA $900,500, general contract 2 story, 50,000 sq. ft. garden level COURTHOUSE, CANON CITY, COLO. Fremont Co. P. Bldg. Auth., Canon City, Colo. Bids June 30, awarded July 22. CD 7-7, under LB.

▲ Kaiser Engineering Div. Henry J. Kaiser Co., 1924 Broadway, Oakland, Calif., CA, design and construct GYPSUM PLANT, ROSARIO, N. M. Kaiser Gypsum Co., Kaiser Bldg., Oakland 12, Calif.

FAR WEST

HEAVY CONSTRUCTION—LB & CA

▲ ARIZONA—State Hy. Dept., 206 S. 17 Ave., Phoenix.

Ashton Co., Inc., P. O. Box 7665, Tucson, Ariz., CA $1,234,661, two 36 ft. wide roadways, grade, drain., S. M. aggregate base underpass lighting and traffic signals, pump sys., 2½ span bridge, Phoenix Interstate Freeway, beginning 0.6 mi. N. Thomas Rd. in Phoenix and extending N. over SR 79 for 2.6 mi. just south of Bethany Home Rd., Maricopa Co. Bids July 10. CD 7-14, under LB.

ARIZONA—State Hy. Dept., 206 S. 17 Ave., Phoenix.

Southern Arizona Contg. Co., P. O. Box 1695, Tucson, Ariz., CA $903,892, S. M. cement treat. base, aggregate base, b. conc. and emulsified asph. seal coat, Casa Grane-Tucson Highway beginning just W. of Pima-Pinal City Line, extending N. W. over SR 84 for 10.4 mi. toward Casa Grande, Pinal Co. Bids July 10, awarded July 22. CD 7-14, under LB.

▲† D. M. Drake, 1600 NW Saxier, Portland, Ore., LB $2,496,758, BOMARC facilities, Adair Air Force Station, ENG-45-108-59-149, CORVALLIS, ORE. U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. Bids July 23. CD 7-13.

▲ Cherf Bros. & Sandkay Constr. Co., Inc., Box 938, Ephrata, Wash., and J. A. Jones, Medical Arts Bldg., Seattle, Wash., CA $2,834,584, Bull Run Dam No.

2 and spillway, PORTLAND, ORE.: City of Portland, City Hall, Portland, Ore. CD 7/20, under LB.

▲ **CALIFORNIA**—State Div. San Francisco-Bay Toll Crossings, 151 Fremont St., San Francisco, **Erickson-Phillips & Weisberg**, P. O. Box 338, Concord, Calif., CA $1,979,994, est. $2,000,000, deck paving, reconstr. portion San Francisco-Oakland Bay Bridge, removing, railway tracks, relocating lower deck skid girder and center line curb and rail, reconstr. roadway etc., San Francisco Co. Bids July 21. CD 7/27, under LB.

▲ **CALIFORNIA**—State Hy. Engr., P. Wks. Bldg., 1120 N. St., Sacramento. Bids opened 7/23.
Judson-Pacific Murphy Div., Yuba Consolidated Industries, Inc., 4300 Eastshore Hy., Emeryville, Calif., LB $8,469,485 (5 bidders), Benicia-Martinez Bridge superstructure across Carquinez Strait, incl. 12,020,000 lb. structural steel; 2,341,000 lb. bar reinforcing steel; 6,705,000 lb. low alloy structural steel and 7,195,000 lb. structural steel, etc. X-IV-Sol-C.C.-75A; H, Contra Costa and Solano Counties. CD 6/10.

▲ **Vinnel Co., Inc.**, 1145 Westminster Ave., Alhambra, Calif., LB $646,890, (11 bidders), Alt. I, 2,000,000 cu. yd. excav., Chavez Ravine site grading, Unit 1, LOS ANGELES, CALIF.: City, City Hall, Los Angeles, Calif., Bids July 22. CD 7/15;
J. A. Thompson & Son, Inc., 8330 Hindry Ave., Los Angeles, Calif., LB $1,684,310, (11 bidders) Alt. II, 5,300,000 cu. yd. excav., Chavez Ravine site grading, Unit 1. (Los Angeles, Calif.).

BUILDINGS—LB & CA

▲‡ **Chris Berg, Inc.**, 2730 Westlake North, Seattle, Wash., LB $3,023,204, est. $2,973,229 (8 bidders), BUILDINGS, Inv. 60-1, FORT GREELEY, ALASKA: U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. Bids July 23. CD 7/14.

▲ **Bishop-Mattei Constr. Co.**, Pier 7, San Francisco, Calif., CA $4,000,000, 75,000 sq. ft. DEPARTMENT STORE, CORTE MADERA, CALIF.: Corte Madera Shopping Center, c/o John S. Bolles, archt., 14 Gold St., San Francisco, Calif.; Montgomery-Ward & Co., lessee. Bids July 21. CD 7/21.

▲ **George A. Fuller Co.**, 3100 W. 8th St., Los Angeles, Calif., CA $15,000,000, general contract 22 story, 422,000 sq. ft. and 237,000 sq. ft. parking structure steel frame OFFICE, 3600 block Wilshire Blvd., LOS ANGELES, CALIF.: Travelers Insurance Co., c/o Welton Becket & Assocs., archts.-engrs., 5657 Wilshire Blvd., Los Angeles, Calif. CD 7/27.

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ **Pigott Constr. Co. Ltd.**, 1250 Bay St., Toronto, Ont., LB $1,434,796, F. G. Gardiner Expressway, Contract R-23-59, 800 ft. rein.-con. structural steel elevated structure, Station 249 plus 4 to Station 257 plus 9, TORONTO, ONT.: Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids July 20. CD 7/7.

▲ **QUEBEC**—Provincial Roads Dpt., Parliament Bldgs., Quebec City.
Highway Paving Co. Ltd., 3701 Jarry St. E., Montreal, Que., CA $5,500,000, highway development along north shore of St. Lawrence River from Seven Islands to Baie Comeau, Seven Islands. Awarded July 17.

▲ **Creaghan & Archibald Ltd.**, 1440 St. Catherine St. W., Montreal, Que., CA $1,044,540, Section 3, superstructure covering drift span, Champlain Bridge over Nun's Island, MONTREAL, QUE.: National Harbors Bd., West Block, Ottawa, Ont. Awarded July 20. CD 6/12, under LB.

U. S. POSSESSIONS

HEAVY CONSTRUCTION—BA

▲‡ **Canal Zone**—BA 8/21—Panama Canal Co., Balboa Heights, water level lighting and fluorescent lights at three locks, Panama Canal, $1,500,000.

FOREIGN

HEAVY CONSTRUCTION—BA

▲ **Belgian Congo**—RUNWAYS, etc.—BA 9/23—Agence Coloniale des Approvisionnements's, 1 Rue de la Regence, Brussels, Belgium; or Conseil des Adjudications du Gouvernment General, Batiment Administratif, 2nd Floor, Room 2117, Leopoldville-Kalina, Belgian Congo, runways, buildings and access road, Stanleyville Airport, No. 28-68-59, $5,000,000. Plans deposit $72.

PROPOSED PROJECTS

WATER SUPPLY

▲ **S. C., Greenwood**—City, City Hall, water filtration plant, near Lake Greenwood, $2,178,000, Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs.

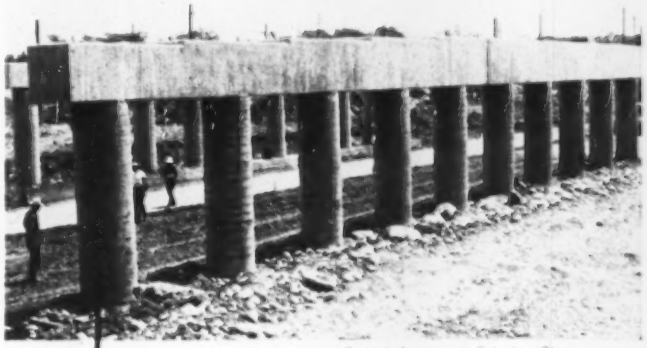
▲† **Tex., Freeport**—Dpt. Interior, Interior Bldg., 19th and C Sts. N.W., Wash. 25, D. C., 1 mg. sea water conversion plant, near here, $1,550,000.

B. C., Warfield—Town, Town Hall, ratepayers passed money by-law June 29, W.W., $170,000. Associated Engineering Services Ltd., 2256 W. 12th Ave., Vancouver, consult. engrs.

SEWERS, WASTE DISPOSAL

▲ **Ariz., Scottsdale**—Town, Town Hall, imprv. streets in 5 districts, $1,066,996. Robert S. Knight, 353 N. Brown Ave., consult. engr. CD 7/17.

Form SMOOTHER round concrete columns FASTER!



Goodale Expressway, Columbus, Ohio
Engineer: Alden E. Stelson & Associates
Contractor: Baker & Hickey Construction Company

Reduce finishing time with
SONOCO
Seamless Sonotube®
FIBRE FORMS

Round concrete columns formed with Seamless SONOTUBE Fibre Forms have a smoother continuous concrete surface . . . only a minimum of finishing is required.

Use Seamless SONOTUBE Fibre Forms wherever finished, exposed columns are required. They form better, strip smoother, finish easier . . . save contractors time, labor and money.

Seamless SONOTUBE Fibre Forms, 36" I.D., used on this job. (Forms not stripped in this photo.)

And, like regular SONOTUBE Fibre Forms, Seamless SONOTUBE Fibre Forms are lightweight, easy to handle and place, and require only minimum bracing . . . form round concrete columns faster and more economically than any other method.

Besides Seamless, there are these other types of SONOTUBE Fibre Forms to choose from: "A" Coated (standard form for exposed columns); "W" Coated (for unexposed columns); and Encasement Forms (for encasing existing pillars, posts, piles, etc. with concrete).

All Sonoco SONOTUBE Fibre Forms are available in sizes 2" to 48" I.D., in specified lengths or standard 18' shipping lengths. Can be sawed.

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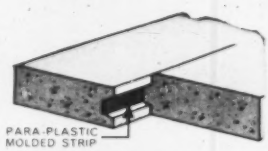
SERVICISED PREMOLDED RUBBERIZED ASPHALT SEALER STRIPS

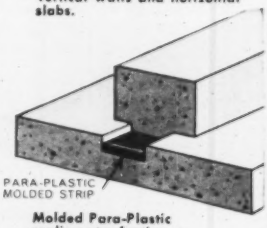
MOLDED *Para-Plastic*®

Molded Para-Plastic is a durable, elastic compound, composed of rubber, asphalt and other materials, molded into a rectangular strip. Properly installed, Molded Para-Plastic will bond securely to concrete to form a resilient and moisture-tight seal of the joint.

Because it presents sealing surfaces on all sides, Molded Para-Plastic is especially effective in sealing keyed construction joints and foundation footings. Not recommended for use in joints where the surface of the material is exposed, or when hydrostatic pressure is present. Available in various sizes with thickness ranging from ¼" to 1" and widths from 1 to 12 inches. Standard length is 5 feet.



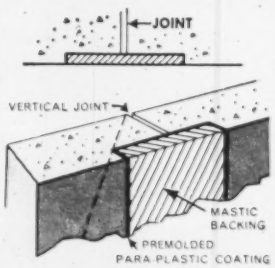
Keyed construction joint in vertical walls and horizontal slabs.



Molded Para-Plastic sealing at a footing.

PARA-LATERAL STRIP

Consists of a rigid mastic backing material coated on one side and two edges with a Para-Plastic rubber-bituminous sealing compound which bonds firmly to the concrete after it has set up, to form a watertight seal. Designed for use in vertical and sloping joints in concrete retaining walls, abutments, wing walls, foundation walls, tunnels, etc., where backfilling against one side of the structure requires a seal to prevent seepage of ground water through the joint to the exposed side. Available in widths of 4", 5", 8", 12", and 13"; standard length is 5 feet.



Application of Para-Lateral Sealing Strip to rear face of wall at joint.

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▲ Mo., Poplar Bluff—City, City Hall, $1,245,000 bond election Aug. 11, disposal plant, pumping station, main trunk and lateral. Haskins, Riddle & Sharp, 1009 Baltimore Ave., Kansas City, Mo., consult. engrs.

▲ N. J., Clark—Clark Twp., Twp. Hall, incinerator, $1,100,000. Alex Potter Asso., 50 Church St., New York, N. Y., consult. engrs. Henry Kreh, Jr., Township Hall, engr. CD 2/11/57.

▲ O., Bowling Green—City, City Hall, $800,000 bond election Nov. 3, sewage plant and sys. expansion, imprvs. est. $1,700,000. CD 11/11.

▲ O., Cincinnati—Bd. Comrs. Hamilton Co., Courthouse, $4,000,000 bond election Nov. 3, storm, sanitary sewers. CD 11/9/56.

▲ O., Heath—Village, Village Hall, sewerage sys., $560,000; sewage treatment plant, $490,000. Bird & Tietzel, 1989 Guilford, Columbus, consult. engrs.

▲ Ont., Niagara Falls—City, City Hall, sewage disposal plant, Victoria Ave. $3,500,000. CD 11/16/45.

STREETS AND ROADS

▲ NEW YORK—State Dpt. P. Wks., State Office Bldg., Albany,

Sullivan and Ulster Counties—reconstr. 9.3 mi. Rte. 209 from Rte. 17 interchange near Wurtsboro, Sullivan Co. northward to Spring Glen, Ulster Co., FAI Proj. $1,800,000.

▲ O., Cincinnati—Bd. Comrs. Hamilton Co., Courthouse, $4,000,000 bond election Nov. 3, road imprvs. CD 11/9/56.

▲ Tex., Houston—City, City Hall, elaborate traffic interchange, Wayside Dr. to provide 3 levels of traffic, $2,000,000. Ralph Baldwin, c/o owner, Direc. P Wks. CD 1/29/58.

EARTHWORK, WATERWAYS

▲ North Carolina—Virginia Electric & Power Co., 7th and Franklin St., Richmond, Va., preliminary plans 200,000 kw hydro-electric plant, Roanoke River near Gaston, $47,000,000. Stone & Webster, 49 Federal St., Boston, Mass., consult. engrs. Applied to F.P.C. for permit. CD 1/18/52, under N. C., Gastonia.

▲ Tex., La Feria—La Feria WC&ID No. 3, water reservoir storage, $2,750,000; levees $2,000,000; ditching, $1,000,000.

▲ Alberta—Calgary Power Ltd., 140 1st Ave. S.W., Calgary, main dam, canal, power house and 135,000 kw generating unit, hydro electric plant on Brazeau River, North Saskatchewan River Basin, $45,000,000. To go ahead at once. Addnl 135,000 kw generating unit $10,000,000 for 1964. CD 6/25/56.

LATIN AMERICA

▲ Mexico, Mexico City—TOURIST CITY—Dpt. P. Wks., Republic of Mexico, Main Admin. Bldg., tourist city, incl. Pan-American Fair and Independence Fair, $20,000,000.

U. S. POSSESSIONS

▲† Canal Zone—Panama Canal Co., Balboa Heights, dredging at Empire Reach, Gaillard Cut, Panama Canal. $4,000,000. Bids in 6 months.

PUBLIC BUILDINGS

▲ Calif., Marysville—SCHOOL—Marysville Union High School Dist., 18th and B Sts., high school, $2,346,930. Constr. Sept. 1960. CD 6/4/57.

▲ Calif., Mountainview—SCHOOL—Mountain View Union High School Dist., P. O. Box 1087, plans by Ernest J. Kump, 450 Ramona St., Palo Alto, high school. $3,215,000. CD 2/17/58.

▲ Calif., San Jose—COURTHOUSE—Bd. Supervs. Santa Clara County, 20 W. Rosa St., plans by Ernest Kump, 520 Santa Cruz Ave., Menlo Park, courthouse and courthouse alterations. $1,700,000. CD 3/16.

▲ Conn., Danbury—SCHOOL—Town, Town Hall, project rejected construction of high school. $3,000,000. CD 5/26.

▲ Conn., Hamden—SCHOOL—Town, Town Hall, plans by Davis, Cochran & Miller, 29 Whitney Ave., New Haven, Hamden High School addn., Dixwell Ave. $1,300,000.

▲ Ky., Louisville—MEDICAL RESEARCH—University of Louisville, 3rd and Shipp Sts., plans by Joseph & Joseph, 202 Speed Bldg., Zone 2, 7 story, 50 x 285 ft., brick, glass, stone medical research bldg. in Medical Centre. $2,600,000. E. R. Ronald & Assoc., 554 S. 3 St., Zone 2, consult. engrs. CD 10/22.

▲ Mass., Framingham—SCHOOL—Town, Lexington St., plans by M. A. Dyer Co., 24 School St., Boston, Junior-Senior High School, Winch Park (Saxonville). $5,000,000. CD 12/3/57.

▲ Minn., Mankato—HEATING PLANT, etc—State College Bd., 41 Sherburne Ave., St. Paul, (1) heating plant and utilities bldg. $900,000, (2) industrial arts and education bldg. $810,000, (3) physical education plant $1,800,000. Mankato State College. CD 7/23/57.

▲ Minn., St. Cloud—SCHOOL—Bd. Educ. plans by Traynor & Hermanson, St. Cloud, Junior High School, $1,600,000. CD 12/5.

▲ N. Y., Levittown—SCHOOLS—Bd. Educ., Levittown, defeated bonds May 5, Senior High School adjacent to Sake School, $2,894,400, and Division Ave. Junior-Senior High School addns., $1,639,100. Plan new vote in future. CD 4/16.

▲ N. Y., Schenectady—APARTMENT—Schenectady Housing Auth., City Hall, 7 story apartment for aging.

(Continued from page 70)

Has no springs, rides on Hydrair*

— With Haulpak's exclusive air-hydraulic suspension system, you completely eliminate maintenance and repair of springs. 4 Hydrair units cushion against loading and travel shocks . . . keep unit riding level over bumps and holes. LW Haulpak also has exclusive LW power-transfer differential — permits unit to haul over wet, muddy areas that bog down competitive trucks.

You'll haul more tons per hour at lower cost . . . with

LW Haulpak®

Low loading height — (only 10'1" on 32-ton size) and large top opening (14'5" x 11') makes it easy to load LW Haulpak *fast*, without spillage.

This revolutionary off-highway truck gives you highest output at lowest ownership and operating costs. You get these profit-making benefits because the all-new, fully-proven LeTourneau-Westinghouse Haulpak is built *specifically* for rugged, heavy-duty hauling. It is not a "beefed-up" highway truck . . . nor does Haulpak have the maintenance problems common on ordinary haulers.

Notice, for example, Haulpak's rugged "V"-shaped body. This exclusive LW design gives you *bonus* yardage within a short wheelbase . . . makes for easy loading . . . and provides a low center of gravity for exceptional stability.

LW Haulpak's short, 130-inch wheelbase gives you unusual maneuverability (makes non-stop U-turn in area only 44'6" wide . . . shortest turning radius of any big off-road truck). You spot, swing around, back up and dump *fast* . . . you eliminate most maneuvering delays, complete faster cycles. You have "feather-touch" power-steer, too . . . system is located high behind bumper, well protected from damage.

And, very important, time lost for maintaining your Haulpak is practically nil. It needs *no* daily lubrication. The entire Haulpak lubrication check — *needed only at 500-hr intervals* — consists of just 4 easily-reached grease fittings. In addition, LW Haulpak's various parts and assemblies — some of them tested and proved by *millions of hours* on LW Tournapulls® all over the world — are much stronger than those used on competitive haulers.

22, 27, 32-ton sizes

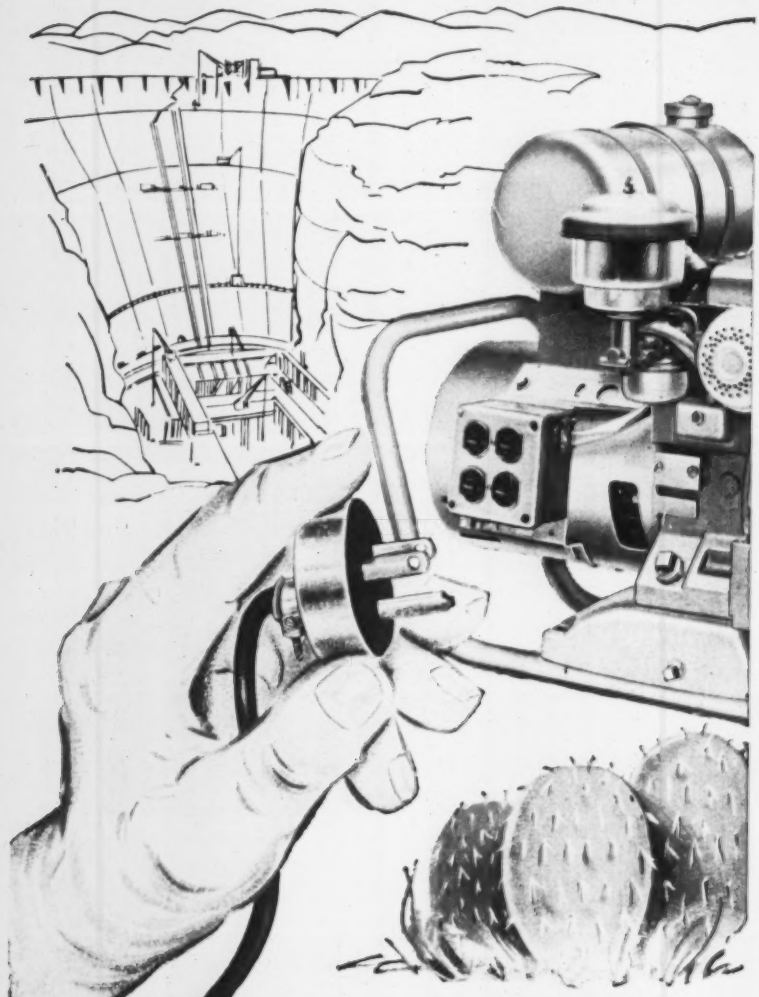
Ask us for detailed specifications on the size Haulpak that fits your needs. Available in 22, 27, and 32-ton sizes . . . 290, 335, and 375 hp. Compare its features with any other truck in the industry . . . you be the judge!

*Trademark HP-2155-G-1

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit



PLUG-IN POWER, ANYWHERE!

In the desert, on a mountain peak, in the Arctic wilderness or equatorial jungle . . . on construction projects the world around, you'll find Onan portable plug-in electric power.

More and more construction contractors have standardized on Onan Electric Plants because they're both portable *and dependable*. Unlike most manufacturers, Onan builds the complete electric plant . . . not only generators but controls and engines, too. Onan engines are specially built to meet the unusual demands of continuous, constant-speed electric plant operation and have set amazing records of longevity and dependability.

And Onan service is everywhere! Service centers with complete stocks of parts are never more than hours away from users in the U.S., and such centers are located throughout 61 foreign countries.

Models from 500 to 230,000 watts.

Call the Onan distributor listed in your phone book or write for folder.

Onan ELECTRIC PLANTS

D. W. ONAN & SONS INC.

ELECTRIC PLANTS GENERATORS ENGINES ENGINE-COMPRESSORS

2759 University Avenue S.E. • Minneapolis 14, Minnesota

(Continued from page 68)

Broadway between Hamilton and Millard Sts. $1,000,000.

▲ **O., Bellevue** — SCHOOL — Bellevue Bd. Educ., bond election Nov. 3, high school. $1,350,000. Outcalt, Guenther & Assocs., 13124 Shaker Square, Cleveland, Zone 20, archts. CD 4/16.

▲ **O., Bolivar**—SCHOOL—Tuscarawas Valley Local School Dist., bond election Nov. 3, high school. $1,082,000. Arsene Rousseau, 2400 Market St., Youngstown, archt. CD 5/8.

▲ **O., Cleveland**—COUNTY ADMINISTRATION—Comrs. Cuyahoga Co., 451 County Admin. Bldg., 1219 Ontario, Zone 13, bond election Nov. 3, County Admin. Bldg. $1,750,000.

▲ **O., Cleveland**—COURT HOUSE—Comrs. Cuyahoga Co., 451 County Admin. Bldg., 1219 Ontario, Zone 13, bond election Nov. 3, County Court House expansion, improv. $1,645,000; Juvenile Court expansion, $400,000. CD 11/10.

▲ **O., Cleveland**—HOSPITAL—Comrs. Cuyahoga Co., 451 County Admin. Bldg., 1219 Ontario, Zone 13, bond election Nov. 3, expanding, improv. County TB Hospital (Sunny Acres). $1,000,000.

▲ **O., Cleveland**—HOSPITAL—Comrs. Cuyahoga Co., 451 County Admin. Bldg., 1219 Ontario, Zone 13, bond election Nov. 3, Metropolitan General Hospital expans. (formerly Cleveland City Hospital, now under county jurisdiction). $2,500,000.

▲ **O., Columbus**—SCHOOLS—South-Western Bd. Educ., 1390 Harrisburg Pike, bond election Nov. 3, schools, $2,250,000. CD 7/17.

▲ **O., Findlay**—SCHOOLS—Findlay Bd. Educ., 1001 Blanchard, $4,800,000 bond election Nov. 3 high school addn., $2,589,500, high school rehab. $735,000, elementary school, $590,000. Perkins & Will, 309 W. Jackson, Chicago, Ill., and Alge & Seebach, 1st National Bank Bldg., Findlay, archts. CD 5/9/55.

▲ **O., Northfield**—SCHOOL—Northfield-Macedonia Bd. Educ., bond election Nov. 3, high school, $1,200,000. CD 10/23.

▲ **O., North Robinson**—SCHOOLS—North Robinson Local School Dist., bond election Nov. 3, schools. $1,100,000.

▲ **O., South Euclid**—SCHOOL—South Euclid Bd. Educ., 4777 Farnhurst Rd.; bond election Nov. 3, high school addn. $2,050,000.

▲ **O., Warren**—SCHOOLS—Howland Twp. Local School Dist., bond election Nov. 3, schools. $1,755,000. CD 11/13/53.

▲ **Pa., Berwyn**—SCHOOL—Paoli Area High School Dist. plans by Harbeson, Hough, Livingston & Larson, 117 S. 17th St., Phila., Senior High School. $1,500,000. CD 6/16.

▲ **Pa., Harrisburg**—SCHOOLS—Central Dauphin Joint School Dist., 4600 Locust Lane, two high schools $6,000,000.

▲ **Pa., Harrisburg**—STATE MUSEUM—General State Auth., 18th and Herr Sts., State Museum at State Capitol (reconstr. interior and air-conditioning). $1,900,000. A. F. Jones, c/o owner, ch. engr. CD 9/11/45.

▲ **Pa., Numidia**—SCHOOL—Southern Area Jt. School Dist., high school. $2,000,000.

▲ **R. I., Newport**—HOUSING—City Housing Auth., Holm St., plans by Castellucci & Galli, Inc., 75 Empire St., Providence, housing for aged, Pond Ave. and Edgar Court. $1,160,475. CD 7/16.

▲ **Tenn., Knoxville**—DORMITORY—University of Tennessee, men's dormitory on campus. $3,200,000.

▲ **Tenn., McMinnville**—PLANT—City, City Hall, 100,000 sq. ft. plant. $1,000,000. Century Electric Co. of St. Louis, lessee. CD 7/15, under Industrial Buildings.

COMMERCIAL BUILDINGS

▲ **Calif., Los Angeles**—OFFICE—Travelers Insurance Co., 700 Main St., Hartford, Conn., 22 story, 452,000 sq. ft. office. $15,000,000.

▲ **Calif., Roseville**—SHOPPING CENTER—Owner, c/o Coldwell, Banker & Co., Realtors & Leasing Agent, 1009 J St., Sacramento, Roseville Square Shopping Center, U.S. 40 Freeway and Rocky Ridge Rd. $2,000,000. Novikoff Engineers, 3858 W. Santa Barbara, Los Angeles, consult. engrs.

▲ **Calif., San Francisco**—BOWLING ALLEY—Mel Weiss & Harold Dubbs, Mel's Enterprises, c/o Goodwin B. Steinberg, archt., 302 Main St., P.O. Box 877, Los Altos, 40-lane bowling alley. $2,500,000.

▲ **Calif., Tahoe City**—APARTMENT—Tahoe Towers Development Co., c/o Morgan Shaw, archt., 2054 University Ave., Berkeley, approx. 7 story frame, wood steel, 90-unit apartment. $1,200,000.

▲ **Colo., Englewood**—OFFICE—Charles & Co., Charles F. Johnson, 3149 S. Broadway, 8 story, 105 x 200 ft. office, 3 story, underground parking facilities. $3,000,000.

▲ **Conn., Berlin**—STORES—David T. Chase, 85 King Philip Drive, West Hartford, plans by Philip J. DiCorcia, 376 W. Middle Tpk., Manchester, 15 stores, 200,000 sq. ft. shopping center, Rte. 72, "Webster Square Shopping Center" 2 banks 60,000 sq. ft. $2,000,000. Francolino & Lapuk, 734 Asylum Ave., Hartford, consult. engrs. CD 7/8.

▲ **Conn., Ledyard**—HOUSES—Bliven Realty Co., 266 W. Main St., Mystic, 100 houses, "Colonel Ledyard Estates", Colonel Ledyard Highway. $1,299,000.

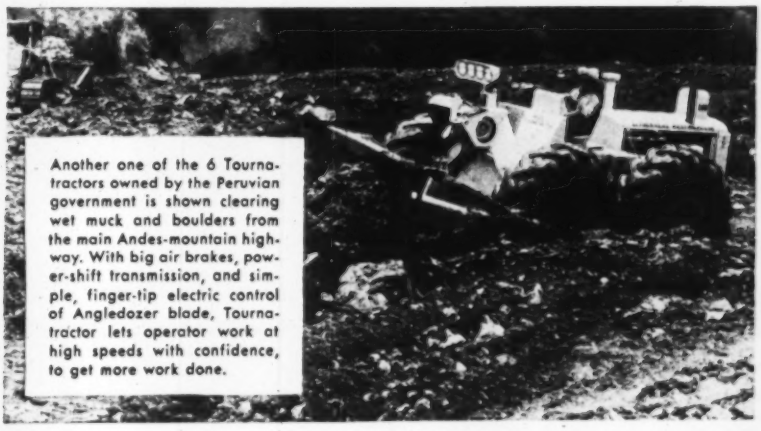
▲ **Conn., Stratford**—MOTEL, etc.—Investors Mortgage Co., Agt., 171 State St., Bridgeport, plans by Jack H. Schecter, 20 Cedarwoods Lane, Bridgeport, 75 unit motel and restaurant, 6905 Main St. $1,100,000. CD 6/25.

▲ **Fla., Jacksonville**—RESIDENCES—Fred L. Ahern, 929 S. 3 St., Jacksonville Beach, plans by Fred Van

(Continued on page 74)

Fast, rubber-tired tractors clear sandslides from Pan American Highway

Working 492 ft above sea level, 2 Tournatractors clear sandslides from the Pan American Highway. Units keep the road open with little or no delay to motor cars and truck transports.



Another one of the 6 Tournatractors owned by the Peruvian government is shown clearing wet muck and boulders from the main Andes-mountain highway. With big air brakes, power-shift transmission, and simple, finger-tip electric control of Angledozer blade, Tournatractor lets operator work at high speeds with confidence, to get more work done.

Two-way traffic now flows steadily on an eleven-mile section of the Pan American Highway, north of Lima, Peru, which is constantly in danger of sandslides. When a slide does occur, the road is quickly cleared by two patrolling LeTourneau-Westinghouse Tournatractors®.

Before using these rubber-tired tractors, the Peruvian government tried working a number of other machines and methods to keep the highway open to traffic. At best, these other machines could only keep one lane of the roadway clear of sandslides. In addition, costs were excessive.

Why Tournatractor can handle the job

These LW Tournatractors, part of a fleet of 6 used by the Peruvian government on its road network, have the right combination of power, speed, and mobility to complete these scattered dozing jobs *fast*. For example, when a section of highway becomes blocked, the rubber-tired tractors rush to the area at speeds to 17.2 mph. Then, with their 14'10"-long Angledozer® blade, these powerful tractors quickly sidecast the sand over the road's edge.

Another big advantage: low operating costs

Another important reason why the 2 Tournatractors maintain the highway at lower cost is the fact that they need less maintenance and fewer repairs. Records show that in over 2 years, these 2 units required only $24 worth of new parts.

The fast-working, fast-traveling, 218-hp Tournatractor can add speed to any tractor assignment. Available attachments include bulldozer and Angledozer blades, root rake, snow plow and wing, rear-mounted power-control-unit, and 18-yd 4-wheel scraper. Write for complete details.

CT-2125-DCJ-1

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

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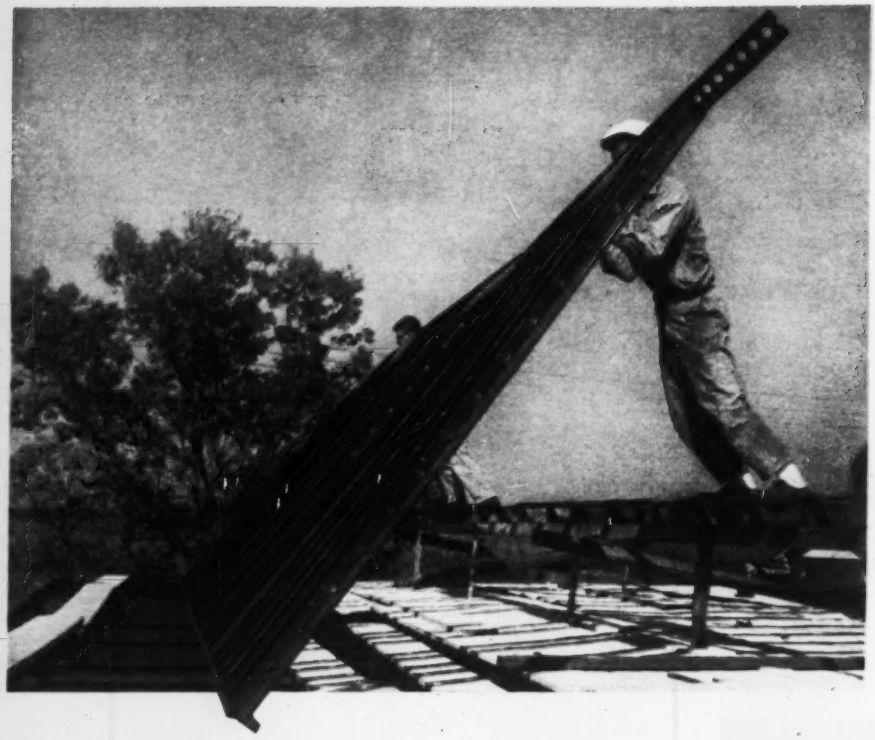
Where quality is a habit



Penmetal Structural Framing is designed for panelization. Track sections are sized to fit over joists, studs and channels; bridging fits within the flanges of studs and channels. Light weight makes erection easy.

panelization

of Penmetal Structural Framing cuts cost of apartment development

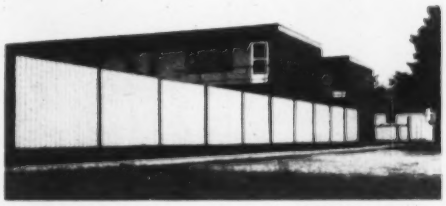
Three 2-story buildings comprise a unique apartment development in Rockford, Illinois. The selling price of each: $35,000. Calculated on a total area of 4,000 square feet, this is only $8.75 per square foot. Yet each building has four modern apartment units, with separate parking facilities, patio and basement.

A key economy factor was Penmetal Structural Framing. Wall panels were pre-assembled, then easily, speedily placed by two or three men. Use of Penmetal joists eliminated the need for load-bearing interior partitions, and enabled the architects to design wide overhangs.

The buildings were erected by the distributing division of Bertel L. Peterson, lathing contractors. Architect was Raymond S. Knowland, with Lawrence L. Liston as associate architect.

Write for details of this highly efficient framing system. Ask for catalog SS-27.

Penmetal joists permitted wide overhangs on two sides.



Unusual privacy fences were built of Penmetal framing and STEELDEK. The interesting texture of the STEELDEK, with ribs running vertically, relieves fence monotony.

PENN METAL COMPANY, INC.

General Sales Office: 40 Central Street, Boston 9, Mass.
Plant: Parkersburg, W. Va.
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Penmetal

a name to remember

PM-211

Grading for military housing project at McChord Air Force Base, Ft. Lewis, Washington, one of Harrison's 3 C 'Pulls load "dead" gravelly silt. Completing 1850' cycles in less than 4 minutes, the 3 Tournapulls hauled an average of 468 pay-yards per hour.

Here's how this successful contractor holds down his equipment investment

Harrison Brothers Company, Tacoma, Washington, has a comparatively low equipment inventory despite the fact that they move both rock and dirt. Key to this cost-cutting set-up is their fleet of 3 LeTourneau-Westinghouse C Tournapulls®. Behind each of these 3 prime-movers, Harrison interchanges LW trailing units to fit the job — the 18-yd Fullpak® scraper for handling dirt, or the 22-ton Rear-Dump for hauling shovel rock.

Example: after the 'Pulls* with Rear-Dumps completed a rock-moving job at Snoqualmie Pass, Harrison switched Rear-Dumps for fast-loading Fullpak scrapers. The scrapers were then assigned to the job pictured above — to move 253,000 yd of gravelly silt for a military housing project at McChord Air Force Base, Ft. Lewis, Washington.

If you handle a variety of materials requiring specialized hauling units, it will pay you to investigate LW 'Pulls. Ask for complete facts on C Tournapull with 18-yd Fullpak scraper and interchangeable 22-ton Rear-Dump. The C 'Pull is available with 270-hp V-power, 20-yd capacity, or 226 hp, 18 yd. See how these tools can help hold down your major equipment investment.

When Harrison Brothers Company has a job that calls for moving shovel rock, it simply switches its 18-yd Fullpak scrapers for 22-ton Rear-Dumps, like the one shown. LW Rear-Dumps have a triple-layered all-steel body that takes the heaviest loading shocks. Its strong, simplified construction eliminates most common maintenance problems.

*Trademark CPCR-2084-DCJ-1

LW

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

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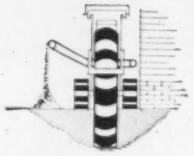
Where quality is a habit

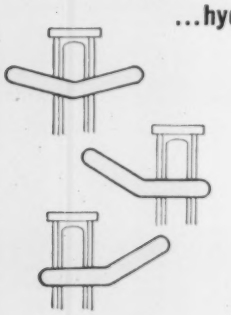
THE MACHINE / for distribution digging

...the new Cleveland J-20 trencher

- less than 5' wide over its crawlers
- digs 13" to 24" wide, down to 5' 6" deep
- puts 24" trench within 20 inches of a parallel wall
- maneuverable full crawler mounting... perfect balance and stability, easy on lawns and sidewalks
- fast, accurate, clean, dependable... nothing digs trench like a Cleveland



Cleveland's unique new V conveyor
...hydraulically shifted... independently driven



- digs past poles, trees, shrubs... places spoil where needed — without interrupting other operations
- lever at operator's seat controls hydraulic shifting and positioning of conveyor
- dual independent hydraulic drive gives operator finger-tip control of conveyor belt direction and speed — independent of all other operations
- self-contained hydraulic motor and planetary gear drives in each head pulley eliminate all conveyor chains and sprockets
- provides constant elevating angle for faster, higher spoil discharge
- Maximum clearance under digging wheel rims permits higher heaped loads without clogging
- conveyor design reduces rolling and tumbling

world's finest trencher crawlers

... double flanged sprockets, rollers, wheels... drives on each end of 1½" diameter hardened pins... sealed ball and roller bearings... 1,000 hour lubrication... a tremendously long-lived, easy-rolling track.

hydraulic crumbing shoe

... optional, extra... pivots upward... fingertip control makes crumbing shoe advantages practical in crowded digging conditions.

engine • crawlers • hoist • wheel
crumbing shoe • conveyor speed-direction-shift / *Every operation controlled at operator's seat*

The CLEVELAND TRENCHER Co.

20100 ST. CLAIR AVE. • CLEVELAND 17, OHIO

Good Everywhere ®

(Continued on page 70)

Dusen, 1028 Gary St., 500 residences, Isle of Palms Subdivision, $7,000,000.

▲ Fla., Jacksonville — BANK, etc. — Florida National Bank, 51 W. Forsyth, plans by Saxelbye & Powell, First Federal Savings Bldg., 10 story, bsmnt., 450,000 sq. ft. bank and office $5,000,000. Bids in September., CD 9/11/52.

▲ Ga., Atlanta—HEADQUARTERS—General Assembly of Presbyterian Church (South) 341 Ponce de Leon Ave. N. E., headquarters. $1,000,000. Const. spring 1960.

▲ Ga., Atlanta—CATHEDRAL—St. Phillips Episcopal Church, 2744 Peachtree Rd. N.E., plans by Francis P. Smith, Whitehead Bldg., and Ayers & Godwin, Bona Allen Bldg., cathedral, $1,600,000. W. H. Armstrong, 26 Peachtree Place N.W., consult. engr. CD 2/11/53.

▲ Ga., Atlanta—APARTMENT—D. C. Spangler Realty Co., 1028 S. Boulevard, Charlotte, N. C., plans by Francis M. Daves, 57 N.E., 310 unit Peachtree Towers Apartment and retail shops. $3,000,000. W. H. Armstrong, 26 Peachtree Place N.W., consult. engr.

▲ Ill., Niles—SHOPPING CENTER—Fidelity Builders, 4214 N. Western Ave., Chicago, shopping center, Harlem Ave. and Dempster St., on 10 acre site, $1,250,000.

▲ Ill., Quincy—HOSPITAL—St. Mary's Hospital, Vermont St., hospital, Vermont St., $3,900,000. CD 6/27/57.

▲ Ky., Louisville—KENTUCKY HOME LIFE—Citizens Fidelity Bank & Trust Co., 5th and Jefferson Sts., Zone 2, plans by Carson & Lundin, 425 Park Ave., New York, N. Y., Kentucky Home Life Bldg., remodeling, modernization, 5th and Jefferson Sts. $2,500,000. Bids soon. D. X. Murphy & Bro., Louisville Trust Bldg., Zone 2, consult. archts.

▲ La., Shreveport—CHURCH—First Baptist Church plans by Neild-Somdal-Smitherman & Assocs., 906 Jordan St., and Wilson Sandifer, 217 Beck Bldg., Proj. A church sanctuary, $1,590,000; educational and admin. $583,0000.

▲ Mo., Cape Girardeau—SHOPPING CENTER—Owner, c/o Senator Albert M. Spradling, Jr., 225 Keller St., first unit shopping center, western edge of city $1,500,000.

▲ Neb., Omaha—OFFICE, etc.—P. Kiewit, Charles Durham & Morris E. Jacobs, c/o Peter Kiewit Sons Co., 1024 Omaha National Bank Bldg., plans by Henningson, Durham & Richardson, 2962 Harney St., 12 story office, multi-level parking garage, 36th, Farnam and Harney Sts. Over $2,000,000.

▲ N. J., Atlantic City—HOSPITAL, etc.—Catholic Diocese of Camden, 721 Cooper St., Camden, Immaculate Heart of Mary Hospital, $1,500,000-$2,000,000; St. Thomas Aquinas School, $1,000,000.

▲ N. J., Clifton—APARTMENTS—Geo. Catino & Harry Wolf, operating as Manor Homes, Inc., 1290 Broad St., Bloomfield, two 9 story, and one 16 story apartments, Rte. S-3 and Grove St. $7,000,000. Fred W. Gardner, 1455 Main St., consult. engr.

▲ N. Y., Buffalo—STUDENT UNION—University of Buffalo, 3435 Main St., student union, $3,000,000. Scheduled for completion in 1962.

▲ N. Y., New York—ARTS CENTER—Columbia University, W. 116 St. and Broadway, plans by Moore & Hutchins, 800 2 Ave., arts center, Amsterdam Ave., W. 115 and W. 116 Sts. $6,000,000. CD 5/26/55.

▲ N. Y., New York—APARTMENT—East 69th St. Apts. Inc., 530 Third Ave., Zone 16, plans by Leo Stillman, 332 E. 149th St., Zone 51, 9 story apartment, 301-7 East 69th St. $1,310,000.

▲ N. C., Wilmington—ADMINISTRATION, etc.—Wilmington College, 1210 Market St., plans by Leslie N. Boney and Ballard & McKin, 120 S. 5th St., 70,000 sq. ft. administration, auditorium, library $1,000,000. Sam Hunter, 120 N. Main St., Sumter, S. C., consult. engr.

▲ O., Lakewood — APARTMENTS — 12520 Edgewater Corp., 17900 Miles Ave., Cleveland, Zone 28, plans by Weinberg & Teare, Citizens Bldg., Cleveland, Zone 14, two 15 story, 140 suite luxury apartments $5,000,000.

▲ Pa., Abington—BOWLING ALLEY—Hankin Bros., Willow Grove, plans by Powers, Daly & DeRosa, 3667 Atlantic St., Long Beach, Calif., and 11-25th St., San Mateo, Calif., and Hagg & D'Entremont, assoc. archts., Jenkintown, bowling alley, stores, Moreland Rd. Over $1,000,000.

▲ Pa., Chester—HOSPITAL—Chester Hospital, 9th and Barkley Sts., Phila., plans by George M. Ewing Co., Western Saving Fund Bldg., Phila., hospital addns., alterations $2,000,000.

▲ Pa., Pittsburgh — ADMINISTRATION, etc. — Shady Side Academy, Fox Chapel Rd., Fox Chapel, plans by B. Kenneth Johnstone, Law & Finance Bldg., administration and library, convert library into faculty apartments, enlarged athletic fields, sewers, heating, electric facilities $1,490,000.

▲ R. I., Providence—DOCTORS—Rhode Island Hospital Bd. Trustees, 593 Eddy St., plans by Shepley, Bulfinch, Richardson & Abbott, No. 1 Court St., Boston, Mass., doctors' bldg. $1,500,000. Bids early October.

▲ S. C., Folly Beach—OCEAN FRONT PLAZA—Folly Plaza, Inc., J. Louis Lempesis, pres., 115 Church St., Charleston, ocean front plaza, incl. hotel, restaurant, bathhouse and 70 unit motel. $1,000,000.

▲ Tenn., Chattanooga—HOMES—Pryor Bacon Realty Co., 5702 Lee Hy., 650 homes, 3 year proj. $6,500,000.

▲ Tenn., Nashville — HOMES — Albert Morris, 833 Ridley St. and John Murphree, 226 3rd Ave. N., 275 homes, Donelson Subdivision. $4,000,000.

(Continued on page 79)

Two LW graders serve fleet of 56 trucks

When Peel Construction Co., Brampton, Ontario, rebuilt an 8-mi. section of Ontario Hwy. 25 recently, two of its 14 LeTourneau-Westinghouse graders got a *real* workout. And the job they turned in is further proof that it pays to use *quality-built* graders in your earthmoving operations.

Grader No. 1...a 123-hp LW Adams* 550 model...was assigned the job of maintaining haul-routes for a big fleet of eight-ton dump-trucks hauling gravel base to the new roadway. Even though as many as 56 trucks were in use at one time, moving heavy loads, the LW grader kept approaches dry, drained, hard, and smooth, permitting high-speed travel to 50 mph.

Grader No. 2...another LW 550...was given an even tougher assignment. As the sand and gravel from the trucks was dumped and spread, the grader followed through to blade off the material, smooth it out, and shape the shoulders and ditch slopes. *All this while normal traffic of automobiles and trucks continued without interruption.*

With an average of 5,000 tons a day of new material dumped on the roadway, this one LW grader kept well ahead on this important assignment.

"Can't be matched"

"Of all the graders this company has owned," according to one company official, "none can beat the LW's. These machines do everything we ask of them. They stand up well under tough work conditions."

See for yourself the work that a heavy-duty LW Adams grader can handle. Ask your distributor to demonstrate the models best suited for your particular need. The big 190-hp and 145-hp models are equipped with torque converters. There are five other models, ranging from 60 to 160 hp. A size to fit every job and every budget.

"It's got good visibility...I can see what I'm doing, coming and going," says John McIntyre, operator for Peel Construction Company. Here he spreads gravel with an Adams 550 on a repaving job, where 56 trucks were kept busy hauling in roadbuilding materials.

*Trademark G-2049-DCJ-1

LW

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

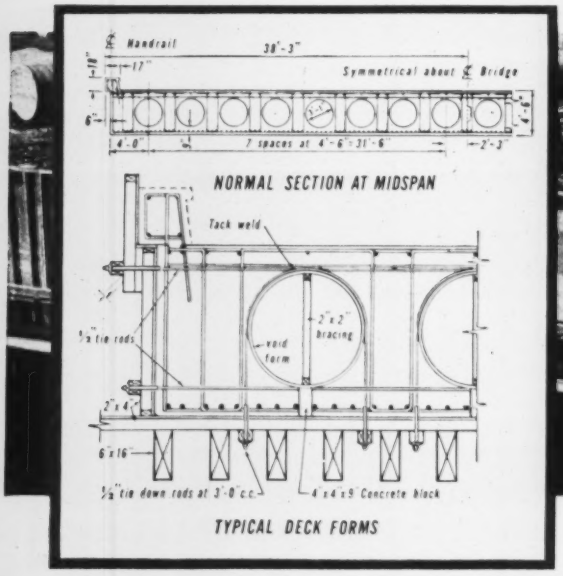
Reinforced CONCRETE

Cored-slab, cast-in-place bridge deck SAVES MATERIALS AND MONEY...

An interesting example of economical and practical bridge design is the new reinforced concrete bridge carrying five tracks of the Santa Fe Railroad over Paramount Boulevard in Los Angeles. The bridge is a two-span, cored-slab, rigid frame structure of reinforced concrete on pile foundations.

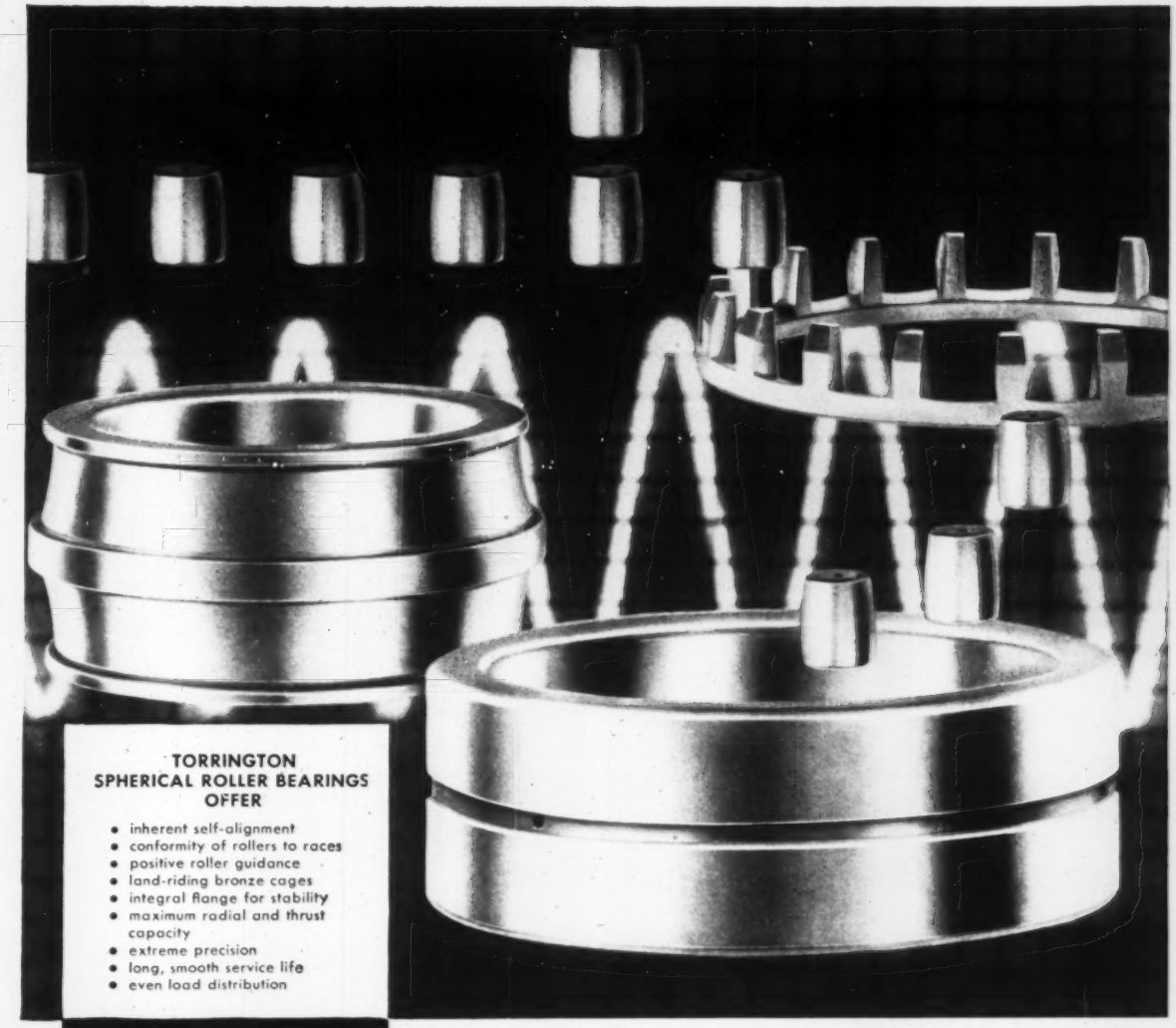
Los Angeles Highway Engineers have used this method of construction for many bridge structures. It has proved to be more economical not only because of the ready availability of materials but also because the cored slabs in the reinforced concrete bridge deck reduce dead weight in the completed structure.

CONCRETE REINFORCING STEEL INSTITUTE
38 South Dearborn Street, Chicago 3, Illinois



Construction detail of bridge deck forms, reinforcing bars, and void tie-downs.

Santa Fe Railroad Bridge over Paramount Boulevard, Los Angeles, California.
Designer: County of Los Angeles Road Department, Bridge Division.
Contractor: Otis B. Pierson Construction Company.



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- inherent self-alignment
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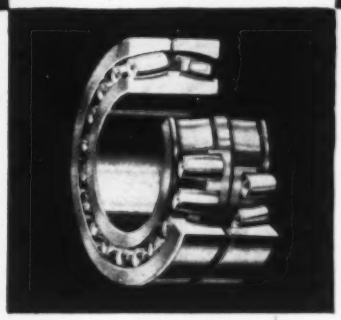
- maximum radial and thrust capacity
- extreme precision
- long, smooth service life
- even load distribution



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Electronics Matches Rollers and Races for Extreme Accuracy

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Roller diameters of a given complement are matched within .0001" of each other. For ultra-precision bearings, tolerances are even closer. Inner and outer races are as rigorously classified. Components are selected for assembly to provide accurate diametrical clearance. The result is bearings of unparalleled accuracy for minimum wear and friction, smooth operation and long service life.

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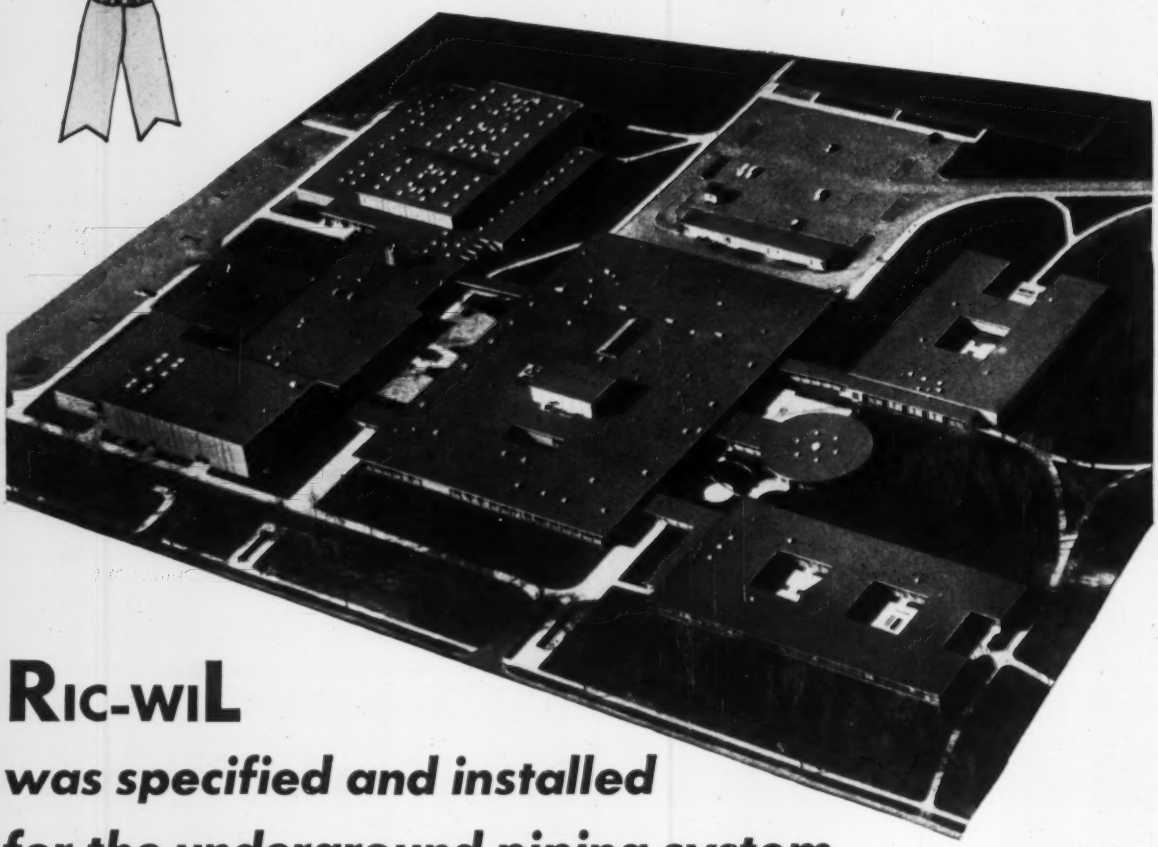
at Award Winning Linton High School...



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was specified and installed for the underground piping system

Architects: Perkins and Will; Ryder & Link
Consulting Engineer: E. R. Gritschke
Contractor: Tougher Plumbing & Heating Co.

RIC-WIL is indeed proud to be a part of the Linton High School Project. All of the firms participating in the annual awards are to be congratulated and encouraged in promoting better design of educational buildings. For over 49 years RIC-WIL has supplied the distribution piping systems for educational buildings through the United States, Canada and many foreign countries. These piping systems have proved to be the finest in Thermal efficiency and mechanical strength. Complete information is available on the many types of systems. Write, wire or phone for literature.

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. . . of Exceptionally High Thermal Efficiency
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WESTERN STATES: WESTERN RIC-WIL COMPANY, NEWARK, CALIF.
IN CANADA: THE RIC-WIL COMPANY OF CANADA LIMITED

(Continued from page 74)

▲ **Tex., Abilene**—DEPARTMENT STORE—Thornton's Department Store, 4th and Oak Sts., plans by F. C. Olds Co., 325 Hickory St., 2 story, brick, steel department store. $1,000,000.

▲ **Tex., Abilene**—STORE—Montgomery Ward & Co., 290 Cypress St., 2 story, 99,108 sq. ft. masonry store, $1,250,000.

▲ **Tex., Longview**—SHOPPING CENTER—Brookwood Development Co., J. B. Moffett & Ed Ferrell, Longview, masonry shopping center, N.E. Longview, $1,100,000.

▲ **Tex., Midland**—APARTMENTS—Owners, c/o Duddlesten & Fossler, 4904 Travis St., three 36 unit apartments, $1,400,000.

▲ **Tex., Seguin**—ADMINISTRATION, etc.—Texas Lutheran College plans by Fehr & Granger, 403 E. 15th St., Austin, administration-classrooms; science; dormitory. $1,900,000. CD 4/4/58.

▲ **Wash., Yakima**—SHOPPING CENTER—Dr. A. J. Myers et al, Miller Bldg., shopping center, Tieton Dr., S. 36 and 38 Sts. $1,200,000.

▲ **Ont., Hamilton**—RESIDENCE, etc.—McMaster University, Hamilton, plans by William R. Souter & Assocs., 36 James St. S., 4 story, Y-shaped men's residence, $1,450,000; plans by Kyles & Kyles, 247 John St. S., student centre, Sterling Ave., $850,000; plans by Husband & Wallace, 30 Hunter St. W., 4 story, L-shaped women's residence, $1,300,000.

▲ **Ont., Toronto**—BANK—Imperial Bank of Canada, Bay and Kings Sts., 10 to 12 story, 88 x 96 ft. bank, southeast corner Richmond and Bay Sts. $1,000,000.

▲ **Que., Chicoutimi**—HOUSES—Rosario Morin, Laniel St., North Chicoutimi, 100 wood, brick houses, on new streets. $1,000,000.

INDUSTRIAL BUILDINGS

▲ **Ala., Mobile**—PLANT—Scott Paper Co., Magazine Point, paper mfg. plant expansion. $20,000,000. CD 8/22/55.

▲ **Ala., Montgomery**—PLANT—Foremost Dairies, 417 Bell, plans by Pearson, Title & Narrows, First National Bank Bldg., 30,000 sq. ft. milk processing plant. $1,000,000. Bids soon.

▲ **Colo., Canon City**—PLANT—Cotter Corp., 531 Main, uranium processing plant expansion. $1,000,000. Western Knapp Engineering Co., 650 5 St., San Francisco 7, Calif., consult. engrs. CD 11/18.

▲ **Ky., Louisville**—PARTS WAREHOUSE—Ford Motor Co., The American Rd., Dearborn, Mich., 300x600 ft., concrete slabs, concrete block, steel frame parts warehouse, on Grade Lane adjoining assembly plant. $1,500,000.

▲ **Tex., Gladewater**—PLANT, etc.—Tidewater Oil Co., M. Esperson Bldg., Houston, raw gas plant to produce sulfur; and recover liquid products, $5,500,000, earthwork to provide storage for residue gas to maintain reservoir pressures, $100,000; repair shop equipment storage, $200,000; plant area lighting $95,500. New Hope-Smackover Fields.

▲ **Tex., Houston**—MATERIALS and SERVICE CENTER—Retail Lumber Dealers' Assn of Houston, c/o West Bldg., materials and service center. $1,000,000.

▲ **Ont., Fort William**—WAREHOUSE, etc.—Imperial Oil Ltd., McIntyre St., warehouse and office. $1,100,000.

UNCLASSIFIED

▲ **Conn., Westport**—MARINA—Town, Town Hall, marina, Cedar Point Yacht Basin, $1,000,000. Goodkind & O'Dea, 1214 Dixwell Ave., Hamden, consult. engrs. CD 12/12.

▲ **Hawaii, Honolulu**—BEACH IMPRVS.—Territory of Hawaii, Honolulu, 100 ft. wide park strip of Kalakaua Ave. for Surf-Rider Hotel to Monsarrat Ave., 75 ft. wide beach, park development public structures as rest rooms changing rooms and canoe and surf boarding facilities, widening sidewalks along Makai side of Kalakaua adjacent to Park Area, replace delated plan for realizing Kalakaua Ave. without land acquisition. $1,500,000.

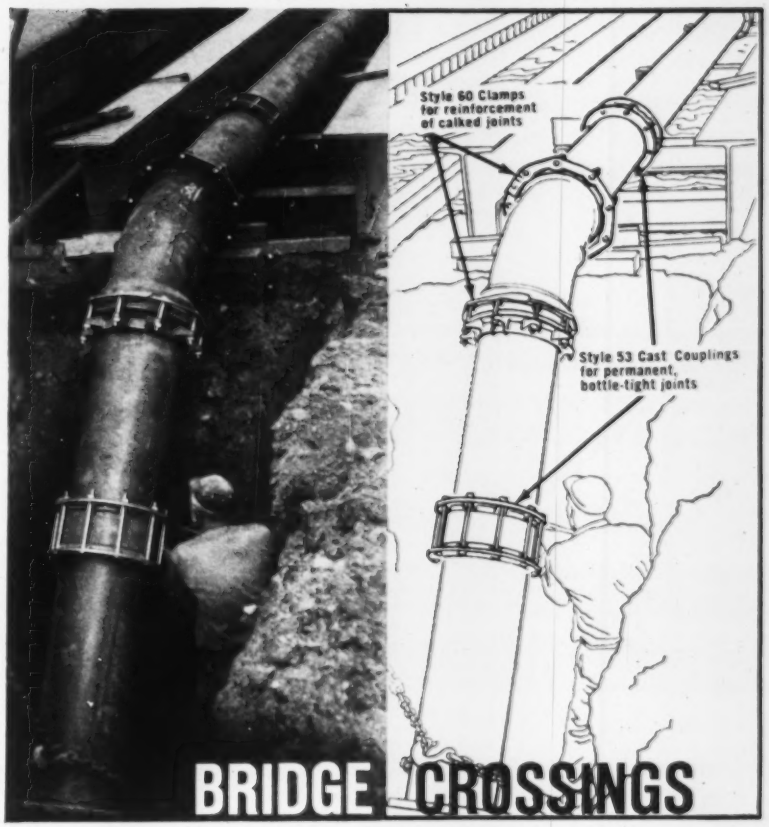
▲ **Hawaii, Honolulu**—PIERS—Bd. Harbor Comrs., 1651 Ala Moana St.,
Passenger and Freight Terminal Piers 5-7, (103/57), $7,250,000.
development of Fort Armstrong for maritime purpose, $4,000,000.
renovation of Piers 8, 9, 10 and 11, $11,000,000.
extension of freight shed, Pier 3, Hilo, $250,000.
development of port facilities at Sand Island, $4,000,000.
remodeling and extension freight shed, Port Allen, $100,000.

▲ **Hawaii, Honolulu**—TERMINAL—Territory on Hawaii Harbor Comrs., 1651 Ala Mosha St., Kawaihae Harbor Terminal Facilities (95/47). $1,000,000.

▲ **Ill., Chicago**—VEHICLE TRAFFIC TUNNEL—Dpt. Purchases City Hall, Zone 2, vehicle traffic tunnel, Michigan Ave. and Oak St. $3,000,000. Approved by City Council July 7, Dick Van Gorp, 320 N. Clark St., ch. engr. Bids in Fall, 1959.

▲ **O., Cincinnati**—STADIUM—Hamilton Co. Fair Bd., Courthouse, 45,000 seat stadium at Carthage Fair Grounds, $8,000,000. Vogt, Ivers, Seaman & Assocs., 34 W. 6th St., Consult. engrs.

▲ **Texas and New Mexico**—PRODUCTS PIPELINE, etc.—Continental Oil Co., 1300 Main St., Houston, Tex., 155 mi. products pipe line from Artesia, N. M., to El Paso, Tex., $2,000,000, terminal steel tank, farm and tank truck loading facilities, $200,000, CD 7/25/55.



MADE FAST AND SIMPLE

...with Dresser® Couplings

Getting this water supply main over the stream bed was made fast and simple by using plain end cast iron pipe, Dresser Couplings and Dresser Bell-Joint Clamps to reinforce the calked joints at the fittings. The whole job was accomplished in about one working day. Available random lengths of pipe were used in the crossing.

There are many long-life advantages built into a Dresser Coupled bridge crossing. The joints are non-rigid, allowing ample leeway for the inevitable vibration, ground settlement strains and other stresses inherent to tough locations. Dresser's exclusive gasket compounds have permanent resilience, assure bottle-tight sealing that lasts the life of the line.

On your next bridge crossing, or on *any tough spot*, do it the fast and simple way. *Install it – forget it* with maintenance-free Dresser Couplings.

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ONE OF THE DRESSER INDUSTRIES

with MACKS like these PROJECTS GO FASTER...

TOUGH JOBS? On projects where nothing but the utmost in strength, traction and endurance can handle the work over sustained periods—Macks speed the job with their sure, steady performance.

ROUTINE JOBS? When truck cycle time is crucial for profitable operations, Macks keep all other equipment in constant operation . . . show the lowest running and upkeep costs of any truck in their class.

UNUSUAL JOBS? Mack can assemble exactly the models you need from interchangeable Mack components — engines, transmissions, frames, axles, etc.—built by Mack in a wide range of sizes.

ANY QUESTIONS? Ask your nearest Mack branch or distributor for the names of Mack users who—like yourself—had to be shown . . . and *were* shown. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

ONLY MACKS OFFER YOU ALL THIS:

Widest range of heavy-duty truck and tractor chassis for construction and road-building—dumpers, concrete mixer models, platform, carry-alls.

Two, four and six-wheel drive models.

Six-wheel trucks offer exclusive Mack Balanced Bogie with Power Divider—the four-wheel, rear-axle drive that delivers the most engine power to the wheels having traction.

Front-wheel drive models have the greatest traction of any truck in their class . . . offer exclusive Mack front-wheel driving axle with greatest ground clearance and all parts fully enclosed.

- Wide Mack power options—diesel and gasoline engines—150 h.p. on up to 335 h.p.
- Famous Mack transmissions from 5 to 20-speed, with torque converter option on larger models. Planetary gear reduction in rear-axle wheels of larger vehicles provides smooth power transfer without excessively large gears in the carrier.
- Mack-engineered steering systems, famous for sharp turning angles and easy handling characteristics, that enable Macks to move under shovels faster, maneuver faster, back faster . . . squeeze in extra trips per shift.
- Rugged, high-tensile frames that give the utmost in structural stamina—heavy-duty axles and suspensions that make light of the heaviest loads over the roughest roadways.
- Many options—including power steering, power brakes, power clutch.

MACK *first name for* **TRUCKS**

MACK B-80 SERIES

PAYLOADS: Rear dumper, 6-12 cubic yards; mixer, 7½ to 8½ cubic yards (in six-wheeler models... larger with special provision). ENGINES: 170, 205, 220 and 320 h.p.—diesel; 232 h.p.—gasoline.

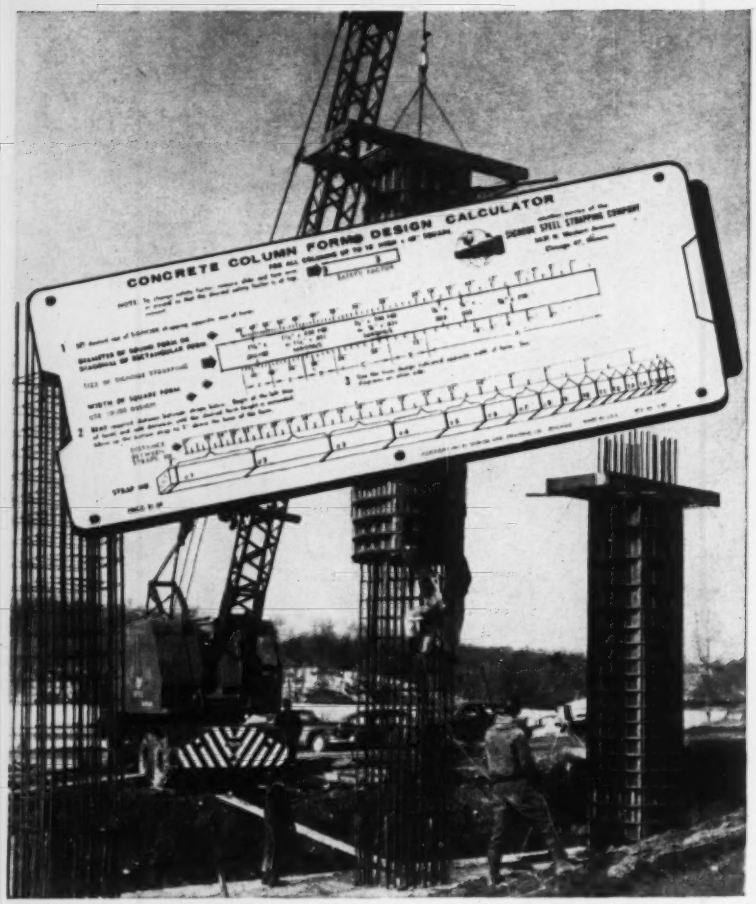
MACK B-40 and B-60 SERIES

PAYLOADS: Rear dumper, 5-10 cubic yards; mixer, 5½ to 7½ cubic yards (in six-wheeler models). ENGINES: 150, 170 and 205 h.p.—diesel; 150 and 185 h.p.—gasoline.

on the job—
PROFITS ARE GREATER

MACK MODEL LRX—PAYLOADS: Rear dumper, 15 tons. DIESEL ENGINES: 170, 205 and 220 h.p.

MACK MODEL LVX—PAYLOADS: Rear dumper, 22½ tons. DIESEL ENGINES: 320 and 335 h.p.



Minimize concrete column form costs ...Signode calculator shows how

The cost of designing, building and stripping concrete forms is a large factor in concrete construction costs. Now, you can reduce these costs sharply by using Signode's standardized column form designs. You save in these ways: by using proved simplified form designs; by faster assembly of forms; by faster stripping and less finishing time; by prefabrication in the horizontal; by needing only one man in most cases—Signode tools are designed for a single operator to work efficiently.

Signode's Calculator speeds column form design. It condenses strap size and spacing data for forms up to 65" diagonal or diameter and offers an option of safety factors up to 5. Six tested truss designs are shown.

A limited supply restricts these handy calculators to architects, contractors and engineers. The nominal charge of $1.00 assures prompt shipment of your calculator. Send your dollar now.

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CONSTRUCTION REPORTS
Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—LB & CA

▲ **NEW HAMPSHIRE**—Dpt. P. Wks. & Hys., Concord. Bids opened 7/23.

J. F. Fitzgerald Constr. Co., 1000 Turnpike St., Canton, Mass., LB **$1,576,617**, (6 bidders), b. conc. 2.60 mi. and 185 ft. and 165 ft. steel beam bridges, Northfield, Merrimack Co. CD 7/8.

† **Theodore Loranger & Sons**, 404 Nash Rd., New Bedford, Mass., LB **$766,517**, est. $800,000. treatment plant for surface water supply sys., Pease Air Force Base, ENG-19-016-59-152, PORTSMOUTH, N. H. U. S. Eng., 424 Trapelo Rd., Waltham, Mass. Bids July 21. CD 7/17.

▲ **Gerald E. Morrissey, Inc.**, 469 Main St., Bennington, Vt., CA **$830,000**, Contr. 3, sewage treatment plant, BENNINGTON, VT. Town, Bd. Selectmen Town Offices, Bennington, Vt. Bids June 23. CD 7/2, under LB.

William H. Morse Constr. Co., Inc., North Bennington Rd., Burlington, Vt., CA **$544,711**, Contr. 2, sanitary interceptor sewer (Bennington, Vt.)

John Zandonella, Inc., 70 Chase St., Bridgeport, Conn., CA **$710,000**, control tower and terminal bldg., water supply, etc., Bridgeport Municipal Airport, Stratford, BRIDGEPORT, CONN. City, City Hall, Bridgeport, Conn. Bids June 30, awarded July 24. CD 7/8, under LB.

BUILDINGS—LB & CA

▲ **Wadhams & May Co.**, 15 Lewis St., Hartford, Conn., CA **$1,250,000**, STUDENT CENTER, Summit St., HARTFORD, CONN. Trinity College, Summit St., Hartford, Conn. Awarded July 24. CD 4/11/56.

▲ **Fabrizio & Martin, Inc.**, 1082 Post Rd., Darien, Conn., CA **$1,875,056**, State Technical INSTITUTE, 81-R-175, NORWALK, CONN. State P. Wks. Comr., 165 Capitol Ave., Hartford, Conn. Bids July 1. CD 7/6, under LB.

Ogden Homes, Inc., 611 New Park Ave., West Hartford, Conn., Owner Builds, **$610,000**, 61 HOUSES, WEST HARTFORD, CONN. CD 9/19/57.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲ **N. Y., New York**—BA 8/13—Bd. Water Supply, 13th floor, 120 Wall St., Zone 5, vertical test borings, in Upper New York Bay and on land in Brooklyn and Richmond Boros, City of New York to determine the elevations, nature and conditions of bed rock and depths and character of overlaying materials. Contr. 469. Plans deposit $5. CD 5/25.

BUILDINGS—SLC

▲ **Pa., Easton**—DORMITORY, etc.—Lafayette College, Easton, soon lets contract, dormitory, dining hall and recreation bldg. $1,000,000. Donald F. Innes, Brooks Bldg., Wilkes-Barre, archt. Quentin H. Bowers, 2nd National Bank Bldg., Wilkes-Barre, engr. CD 3/12/56.

▲ **Pa., Villanova**—SCIENCE—Villanova University, soon lets contract, 3 story, 236 x 75 ft., brick, block structural steel science bldg. $1,000,000. Henry D. Dagit & Sons, 13209 Race St., Phila., archts., Day & Zimmermann, 1700 Sansom St., Phila., engrs. CD 2/2.

HEAVY CONSTRUCTION—LB & CA

▲ **Corbetta Constr. Co.**, 220 E. 42nd St., New York 17, N. Y., CA **$3,977,000**, concrete framing of superstructure for new Pier 40, North River, Manhattan Boro, NEW YORK, N. Y. Comr. Marine & Aviation, Room 304, Battery Maritime Bldg., foot of Whitehall St. (South Ferry), New York 7, N. Y. Bids June 26. CD 6/30, under LB.

▲† **Al Johnson Constr. Co.**, 608 Foshay Terrace, Minneapolis, Minn., LB **$5,004,780**, dredging Delaware River between Phila., Pa. and Trenton, N. J., incl. removal and disposal of 900,000 cu. yds., PENNSYLVANIA and NEW JERSEY. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. Bids July 23. CD 7/2.

BUILDINGS—LB & CA

▲ **Lake Success Business & Professional Park, Inc.**, c/o Irving Hirshman, archt.-engr., 230 W. 13th St., New York 3, N. Y., Separate Contracts, **$3,000,000-$4,000,000**, BUSINESS and PROFESSIONAL PARK, LAKE SUCCESS, N. Y.

▲ **W. E. Bouley Co., Inc.**, 265 Genesee St., Auburn, N. Y., LB **$390,176** (5 bidders), general constr. POWER PLANT addn. and equipment, Rochester State Hospital, ROCHESTER, N. Y. Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany, N. Y. CD 9/26/56.

Kenneth A. Taylor, Inc., New Court Ave., Syracuse, N. Y., LB **$838,951** (4 bidders), heating work for Rochester State Hospital (Rochester, N. Y.)

Walter A. Stanley Constr. Co., Inc., 23 Railroad Ave., Ossining, N. Y., LB **$929,000** (18 bidders), general constr. INDUSTRIAL SHOP, incl. service connections, Green Haven Prison, STORMVILLE, N. Y. State Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany, N. Y.

Costanza Constr. Co., 3001 Vineyard Ave., Baltimore 18, Md., CA **$854,257**, brick, concrete, steel, block Grange ELEMENTARY SCHOOL, Merritt Blvd., near Dundalk, TOWSON, MD. Baltimore Co. Bd. Educ., Aigburth Rd., Towson 4, Md. Bids July 9. CD 7/14, under LB.

(Continued on page 84)

125 TONS at 17′ radius

Greatest lift capacity on crawlers

NEW MANITOWOC model 4000 crane

Another first from Manitowoc — the world's only crawler crane with a huge 125 ton lifting capacity! Here's power to make the heaviest lifts with ease — stability to poke booms way up. ■ Look under the powerful new Manitowoc 4000 and you'll find a heavy, massive rotating base with huge hook and house rollers for fast, smooth swings carrying the heaviest loads. The big, stable undercarriage and long, wide-spread crawlers provide a solid lifting foundation. ■ Look *inside* the Model 4000 and you'll find the big, double drum boom hoist that powers loads up *and* down. Boom hoist is self-locking worm gear type that cannot "free wheel". On the rugged main drum the job-proved external brake and internal clutch friction arrangement assure positive control when placing heavy iron sky high. Extra-friction surface, disc-type swingers provide instant response to the operator's touch. Both manual or full air controls are available. ■ To meet any lifting requirement, there is a full range of boom lengths and jibs. The basic boom supplied with the rig is a new Manitowoc "T" section boom 70′ long, available with inserts of 10′, 20′ and 30′. For those really high, lightweight lift jobs, extra long booms and jibs in the 300′ range provide real "sky hook" reach. ■ You'll want more information on the new Model 4000. Get it now from your Manitowoc distributor, or write to the Manitowoc Engineering Corp., Manitowoc, Wisconsin.

Manitowoc

MANITOWOC ENGINEERING CORP.

(A subsidiary of The Manitowoc Company, Inc.)

MANITOWOC, WISCONSIN

CRANES	SHOVELS	DRAGLINES	TRENCH HOES
25 TON - 125 TON	1¼-YD. - 5½-YD.	1¼-YD. - 6-YD.	1¼-YD. - 3-YD.

Luxurious hotel protects the masonry of its reservoirs from leaking!

THORO System Materials employed for their sealing and waterproofing qualities

Workmen applying Thoroseal to heavy masonry structure required 30,360 lbs. of Thoroseal

Subterranean vaults house fuel oil and fresh water supply for Habana Hilton

Poured concrete rooms, two and three floors below basement level, were designed to house supplies of fresh water and fuel oil in the operation of the Habana Hilton in Cuba.

Although the masonry in these storage rooms was structurally sound, it was equally imperative that they be leakproof.

The THORO System materials were employed to seal the concrete structure of these unique rooms against leakage.

WATERPLUG, famous for its ability to stop leaks instantly, was applied to the joints where walls, floor and ceiling met and to anchor pipe and conduit fixtures.

THORITE, a twenty-minute set patching compound, was troweled into the honeycombing of the masonry.

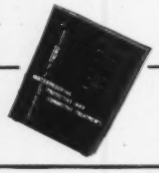
THOROSET, ingredient for hardening and waterproofing concrete was used in the mixture of a cement compound for trowel-coating over all surfaces.

THOROSEAL, applied in two heavy brush coats, sealed the masonry from all possible leakage.

THOROBOND, applied to the extra smooth sections of the poured masonry, made it possible to bond both **THOROSET** and **THOROSEAL** to the surface.

P & W Floor Hardener gave floors extremely hard wearing surface.

Write for our NEW 20 page brochure circular ENR-17



Standard Dry Wall Products Inc.

NEW EAGLE, PA.

(Continued from page 82)

▲ **Grammery Constr. Corp.,** 114 Liberty St., New York N. Y., LB **$907,882,** general contract CONVENTION HALL improvs., ATLANTIC CITY, N. J. Bd. City Comrs. Dpt. P. Wks., City Hall, Atlantic City, N. J., Bids July 16. CD 7/1.
Massett Bldg. Co., 212 N. Georgia Ave., Atlantic City, N. J., LB **$793,370,** tunnel walk by Convention Hall, (Atlantic City, N. J.).

Anthony Lascari, 97 Kimmig Ave., Lodi, N. J., Owner Builds, **$750,000,** 35 HOUSES, White Terrace EAST RUTHERFORD, N. J.

Moraca Constr. Co., 622 Penn St., Camden, N. J., LB **$814,000,** general contract JUNIOR-SENIOR HIGH SCHOOL, GLOUCESTER, N. J. Bd. Educ., Gloucester, N. J. Bids July 16. CD 6/29.

▲ **Fleming Rough, Inc.,** Lafayette Hill, Pa., CA **$1,000,000,** HOTEL, Atlantic Ave., LONGPORT, N. J. Jamaica Inn, c/o general contractor.

▲ **R. E. Wells,** Margate, N. J., LB **$1,073,241,** est. general contract REGIONAL HIGH SCHOOL, MAYS LANDING, N. J., Greater Egg Harbor Regional High School Bd., Mays Landing, N. J. Bids July 13. CD 7/1.

▲ **White Constr. Co.,** 95 Madison Ave., New York, N. Y., LB **$2,485,000,** est. $4,000,000, HOSPITAL addn., MORRISTOWN N. J. Bd. Trustees Morristown Memorial Hospital Madison Ave., Morristown, N. J. Bids July 21. CD 7/13.

John Lawrence Point Pleasant Estates, Beaver Dam Rd., Point Pleasant, N. J., Owner Builds, **$850,000,** 48 HOUSES, St. Louis Ave., POINT PLEASANT, N. J.

Alexander Caplan, 406 Main St., Chatham, N. J., Owner Builds, **$600,000,** 12 HOUSES, Oak Ridge Rd., sect. of Great Hills, SHORT HILLS, N. J. Walter Pfeiffer, 109 Washington St., Morristown, N. J., archt.

▲ **New Jersey Post Constr. Co.,** 8150 Union Ave., Pennsauken, N. J., CA **$1,130,370,** general contract HIGH SCHOOL, WOODBURY, N. J. West Deptford Twp. Bd. Educ., Woodbury, N. J. Bids July 7. CD **7/20, under LB.**

▲ **Felix Clauss & Sons,** Red Lion and Northeast Aves., Phila., Pa., Separate Contracts, **$4,250,000,** RESIDENTAL DEVELOPMENT (250) Limekiln Pike, etc., **AMBLER, PA.**

D. S. Warfel Assoc., Inc., 1540 Manheim Pike, Lancaster, Pa., LB **$798,700,** general constr. HOSPITAL addns., alterations, EPHRATA, PA. Ephrata Pa. Community Hospital, Ephrata, Pa. Bids July 14. CD 6/30.

▲ **Barclay White & Co.,** 3337 Market St., Phila., Pa., CA **$1,000,000,** VACCINE WING addn. and VIROLOGY LABORATORY, GULPH MILLS, PA. Smith Kline & French Laboratories, 153 Spring Garden St., Phila. Pa. CD 7/6.

▲ **Wininger Constr. Corp.,** 10 Rockefeller Plaza, New York 20, N. Y., CA Est. **$1,300,000,** 3 story, bsmnt., 44,000 sq. ft. pre-cast concrete structure Valley Forge RESEARCH CENTER, OAKES, PA. Container Corp. of America, Oakes, Pa.

▲ **B. Bornstein & Son,** 2027 Arch St., Phila., Pa., LB **$1,214,000,** REHABILITATION CENTER, PHILA., PA. Lucian Moss Home, York and Tabor Rds., Phila., Pa. Abraham Levy, 1420 Walnut St., Phila., Pa., archt. David Bloom, 1411 Walnut St., Phila., Pa., engr. CD 6/19/58.

▲ **Prestressed Structures, Inc.,** 517 N. 66th St., Phila., Pa., CA **$3,000,000,** WAREHOUSE, Penrose Ave. PHILA. PA. Sun Ray Drug Store Co., 49th St. and Lancaster Ave., Phila., Pa. CD 5/5.

Ernest DiSabatino & Sons, Inc., 2601 West 4 St., Wilmington, Del., LB **$997,000** (11 bidders), WAREHOUSE, 144,000 sq. ft. storage space, WILMINGTON, Del. Bd Harbor Comrs., Fort Christiana Ave., Wilmington, Del. Bids July 23.

SOUTH

HEAVY CONSTRUCTION—BA

▲† **Va., Langley Air Force Base**—BOMARC FACILITIES—BA On Or About 8-27—U. S. Eng., foot of Front St., Norfolk. Langley Bomarc Facilities, Flight "B" consisting 28 launcher storage bldgs. on 62x23 ft. piling, precast concrete-steel; 160 ft. x 160 ft. composite bldg., electrical distr., and communications sys., distr. sys. for hot water and low pressure compressed air and roads, etc. ENG-44-110-60-1. ENG-44-110-60-2. $2,250,000. CD 9/11/52.

BUILDINGS—SLC

▲ **Ky., Louisville**—WAREHOUSE—Ford Motor Co., The American Rd., Dearborn, Mich., soon lets contract 1 story, 300 x 600 ft. steel frame parts warehouse, Grade Lane. $1,500,000. CD 7/22.

HEAVY CONSTRUCTION—LB & CA

▲ **GEORGIA**—State Hy. Dpt., 2 Capitol Square, Atlanta, Bids opened 7/24.

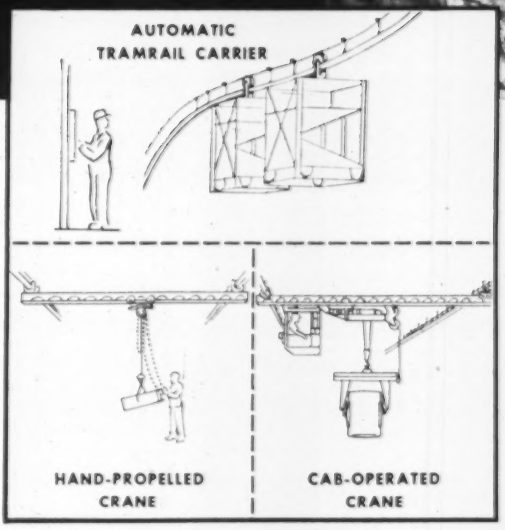
Ga.—**Seaboard Constr. Co.,** Box 567, Brunswick, Ga., LB **$323,123,** grading, surf. tr. paving and 4 bridge culverts 9.046 mi. on (lower) Valdosta-Homerville Rd., S-0568 (4) SR 187, Clinch Co.;

Ga.—**Southern Roadbuilders, Inc.,** Box 1129, Augusta, Ga., LB **$2,638,767,** 4-lane grading and c. conc. and bit. surf. tr. paving and 1 double stream bridge and 3 single highway separation bridges, 7.605 mi. Valdosta-Atlanta Interstate Rt., SR 215 I-75-1 (2) Crisp and Dooly Counties;

Ga.—**Coffee Constr. Co.,** Box 329, Eastman, Ga., LB **$340,097,** grading, surf. tr. paving and 1 stream bridge 9.069 mi. Clyatteville-Statenville Rd., U. S. Rte. 31 at Lake Park, S-0951 (2) CR, Lowndes and Echols Counties. CD 7/15.

(Continued on page 86)

Fish Scale Proves Cleveland Tramrail Easy Rolling



FOR decades Cleveland Tramrail has advertised the following guarantee covering all cranes and carriers it produces:

Guaranteed Starting Effort 15 lbs. and Running Effort 10 lbs. Per Ton Weight.

Recently a machinery manufacturer used a fish scale to check the pull required to move his hand propelled Cleveland Tramrail crane, which was loaded with a machine weighing 1750 lbs. The crane itself, including hoist carrier, weighed 913 lbs. The total load, therefore, was 2663 lbs.

The test indicated a pull of 12 lbs. was required to start the load and 10 lbs. to keep it moving. On the basis of ton weight moved, the starting effort was 9 lbs. and running effort 7½ lbs. Obviously, the test proved the soundness of Cleveland Tramrail's guarantee.

Because of a number of outstanding design features, all Cleveland Tramrail equipment is unusually smooth operating, whether it be hand propelled, motor-driven, or completely automatic. In fact, Cleveland Tramrail equipment rolls so easily that often hand propelled equipment can be used where motor-driven is normally found necessary.

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FIVE IN ONE

FIREBALL

Here's what makes this Miller model the "Five-in-One":

1. AC welder for metallic arc welding
2. DC welder for metallic arc welding
3. AC or DC welder for TIG welding
4. A 10 KW, 115/230v single phase 60 cycle power plant
5. 1 KW of DC while welding

The DAH-350-L Fireball, driven by Hercules 32 hp engine, is another Miller FIRST, offers both a-c and d-c for metallic arc or TIG welding with three separate a-c and d-c amperage ranges for each.

There's continuous high frequency for a-c TIG welding with choice of "start only" or constant high frequency for d-c TIG work.

Standard equipment includes built-in high frequency stabilizer, polarity switch, power supply for water coolant system, and automatic inert gas control panel with solenoid valve and post flow timer. Trailers are available for welder only or for welder with coolant system and gas cylinders.

Other Miller welders in this series include:

DA-300-L BIG RIG
Four-in-One:
AC arc welder; DC arc welder; 10 KW AC power plant; 1 KW DC while welding

D-250-L ROUSTABOUT
Three-in-One:
DC arc welder; 10 KW AC power plant; 1 KW DC while welding

D-250-W ROUGHNECK
Two-in-One:
DC arc welder; 1 KW DC while welding

SPECIFICATIONS

	Metallic Arc	Tungsten Arc
WELDING RANGE	35-100 Amps AC	35- 75 Amps AC
	65-160 Amps AC	65-160 Amps AC
	110-400 Amps AC	150-375 Amps AC
	35- 80 Amps DC	35-100 Amps DC
	75-175 Amps DC	85-225 Amps DC
	125-350 Amps DC	170-375 Amps DC
RATED OUTPUT	250 Amps Tungsten Arc, 100% Duty Cycle DC	
	300 Amps Tungsten Arc, 100% Duty Cycle AC	
CURRENT ADJUSTMENT STEPS	Infinite	
MAXIMUM O.C.V.	72 Volts DC	
	80 Volts AC	
1 KW DC AUXILIARY POWER	115 Volts	
AC GENERATOR OUTPUT	10 KW	
OUTPUT VOLTAGE	115/230 Volt, 1 Phase, 60 Cycle	

Complete specifications on these welders will be sent promptly upon request.

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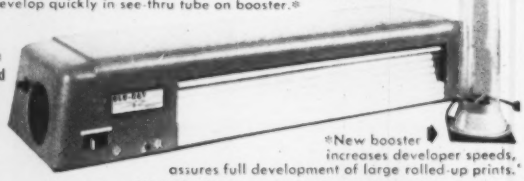

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BLU-RAY

(Continued from page 84)

▲ GEORGIA—State Hy. Dpt., 2 Capitol Square, Atlanta. Bids opened 7/24.

Ga.—**Gentry & Thompson**, 928 Lindberg Drive N. E., Atlanta Ga., LB **$783,176**, 4 highway grade separation structures, Edgewood and Auburn Aves. and Houston St. in Atlanta, and 1,458 ft. grading and b. conc. paving Atlanta North-South Expressway I-401-319) CT 4 and (10) CT 4 (I-72-3) (9) CT 4 and (10) CT 4 New, Fulton Co.;

Ga.—**Cherokee Constr. Co., Inc.**, Box 279, Haw Kinsville, Ga., LB **$328,451**, widen 2 bridges at Buffalo Cr. and 1 bridge at Gumm Cr. and 1 bridge at Town Cr. and new bridges at Bluff Branch and on Sandersville-Milledgeville Rd., SR 24, BA (4) SP 1010 (8), Washington and Baldwin Counties. CD 7/15.

W. L. Cobb Constr. Co., 10309 St., St. Petersburg, Fla., CA **$609,874**, EW and NS Runways, St. Petersburg-Clearwater International Airport, CLEARWATER, FLA. Bd. Comrs. Pinellas Co., 305 Haven St., Clearwater, Fla. Bids June 5. CD 6/21, under LB.

Joe Reinertson, 2027 NW 7 Ave., Miami, Fla., CA **$731,103**, grading, paving, sidewalks, curbs and drainage and installation utility system, County Civic Center Development, MIAMI, FLA. Bd. Comrs. Dade Co., 10 floor, Courthouse, Miami, Fla. Bids July 14, awarded July 22. CD 7/21, under LB.

▲ LOUISIANA—State Dpt. Hys., State Office Bldg., Baton Rouge. Bids opened 7/22.

La.—**T. L. James & Co., Inc.**, Ruston, La., LB **$308,903** (2 bidders), aggregate type soil cement base course, bit. surf. tr. 5.973 mi., etc. Morse-Lyon Point Hy., Rte. 92 S.P. 801-30-02, Acadia Parish; LB **$835,363** (2 bidders), soil cement base course widen existing c. conc. pavement bit. mix surf., etc. 15.308 mi. Opelousas-Lebeau Hy., Rte. 167 and 10 S.P. 32003-09 and 32-04-12, St. Landry Parish. LB **$246,954** (2 bidders), resurf. existing asph. type, resurf. existing asph. surf with bit. mix for hot application, Pearlington Hy. Rte. and 90, 11.057 mi., S.P. 13-13-09 and 6-07-20, St. Tammany Parish; LB **$253,321** (2 bidders), grading, aggregate type or comb. aggregate type soil lime subbase course, soil cement base course, bit. surf. tr. 3.69 mi. Delcambre-Lozes Hy., State Rte. LA 89, S.P. 397-04-03 and 397-05-05, Vermillion and Iberia Parishes;

La.—J. H. Jenkins, Inc., 9263 New Hammond Highway, Baton Rouge, La., LB **$399,942** (2 bidders), b. conc., etc. 0.535 mi. S.P. 77-05-14, F.A.P. U-168 (3) Rte. 950-7, East Baton Rouge Parish Co. CD 7/15.

▲† Brown & Root, Inc., 4100 Clinton Dr., Houston, Tex., LB **$14,726,871**, Old River Lock, Pointe Coupee Parish, CIVENG-16-047-59-200, LOUISIANA, U. S. Eng., foot of Prytania St., New Orleans 9, La. Bids July 23. CD 6/5.

BUILDINGS—LB & CA

Roediger Constr. Co., 1729 Super St., Cleveland, O. CA Est. **$750,000**, 2 story, bsmt. MOTEL, swimming pool, Boone County Airport, ERLANGER, KY. Airport Motel, Inc., and Kenton County Airport Bd., Covington, Ky. Awarded July 21. CD 1/10/57.

MIDDLE WEST

BUILDINGS—BA

Wis., Wausau—SCHOOL—BA 8/25—Bd. Educ., high school addn. $850,000. Plans deposit $30. W. Holmes, 2200 Michigan National Tower, Lansing, Mich., and Foster & Vasko, 407½ Scott St., Wausau, Wis., archts. CD 1/5.

Mich., Addison—SCHOOL—BA 8/28—Addison Community School Dist., high school. $700,000. Wakely-Kushner-Wakely, 21429 Mack Ave., St. Clair Shores, archts. CD 8/6/57.

BUILDINGS—SLC

▲ Ill., Chicago—APARTMENT—Cosmopolitan National Bank (tr.), 810 N. Clark St., soon lets contract, 27 story, 162x170 ft., brick, concrete block apartment, 1555 N. Dearborn St. $10,000,000. Milton M. Schwartz, 2709 W. Roosevelt Rd., archt. CD 7/15.

HEAVY CONSTRUCTION—LB & CA

Mosser Constr. Co., Fremont, O., LB **$947,780**, est. $989,186, (15 bidders), sewage plant expansion, NEWARK, O. City, City Hall, Newark, O. CD 2/20.

▲ ILLINOIS—Dpt. of Pub. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield. Bids opened 7/24.

Ill.—**Gorman & Sons, Inc.**, 4408 State St., East St. Louis, Ill., LB **$533,270**, (4 bidders); 2 grade separation structures FA 4 over FAI-70 north of East St. Louis, St. Clair Co.; LB **$261,581**, (4 bidders), grade separation FA 4 north over Roadway 6 north of East St. Louis, St. Clair Co. CD 7/16.

Ill.—**Eric Bolander & Co.**, Winchester Rd., Libertyville, Ill., LB **$1,187,361**, (8 bidders), grade separation Cass Ave. over US 66 south of Westmont, DuPage Co.; CD 7/16; LB **$175,287**, (4 bidders), RR subway structure Ill. 132 in Gurnee, Lake Co. CD 7/9.

Ill.—**Hoeftken Bros., Inc.**, 222 W. B St., Belleville, Ill., LB **$182,395**, (4 bidders), grade separation FAI-70 3 mi. west of Collinsville, Madison Co.; LB **$689,707** (3 bidders), 2 grade separation FAI-70 and Ill. 157 1 mi. west of Collinsville, Madison Co. CD 7/9.

Ill.—**W. E. O'Neil Constr. Co.**, 2751 N. Clybourne, Chicago, Ill., LB **$379,657**, (13 bidders), 2 grade separations Ill. 83 over US 66 south of Clarendon Hills, DuPage Co.;

Ill.—**Trompeter Constr. Co.**, 2428 4th St., Peru, Ill., LB **$324,682** (4 bidders) 2 grade separations, FA 178 under 4th and 7th St., Peru, LaSalle Co.;

Ill.—**Fruin-Colnon Co.**, 1706 Olive St., St. Louis, Mo., LB **$631,746**, (3 bidders), 2 structures for tri-level graded separation, East St. Louis Expressway near Baugh Ave., St. Clair Co.;

(Continued on page 90)

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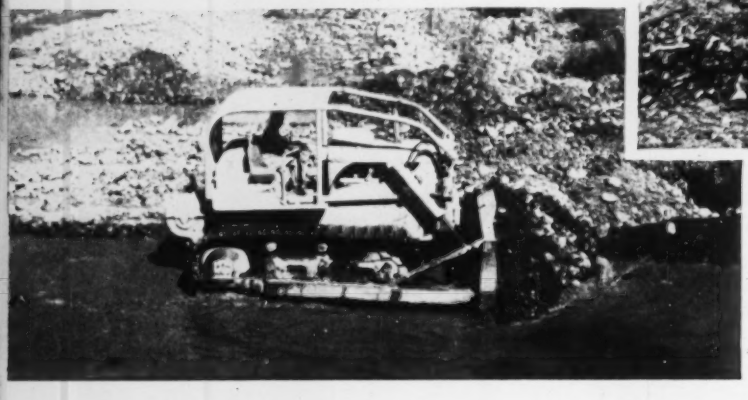

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(Continued from page 86)

Ill.—**Keeley Bros. Constr. Co.**, 4211 State St., East St. Louis, Ill., LB **$2,137,481**, (3 bidders), 2 grade separations, paving East St. Louis Expressway, between Missouri and Summit Aves., St. Clair Co.;

Ill.—**E. H. Swenson & Son**, 14 Henderson Ave., Joliet, Ill., LB **$1,442,585**, (8 bidders), 2 grade separations, US 66 over Downers Grove Rd., south of Downers Grove DuPage Co. CD 7/16.

Seneca Petroleum Co., Seneca, Ill., LB **$680,833**, (4 bidders), street imprvs., (A) b. conc. paving curb and gutter 8.31 mi. Section 22-CS, (B) concrete paving, curbing 2.63 mi. Section 23-CS SUMMIT ARGO, P. O. Ill. Village, Village Hall, Summit, Ill. Tower Engineering Co., 3108 Oak Park Ave., Berwyn, Ill., engr. Bids July 13.

BUILDINGS—LB & CA

▲ **Gibbons-Grable Co.**, Mellett Bldg., Canton, O. LB Est. **$1,500,000**, (8 bidders), PROCESS CHEMICAL PLANT, HOLMESVILLE, O. Addressograph-Multigraph Corp., 1200 Babbitt Rd., Cleveland 32, O. Bids July 7. CD 6/22.

▲ **Valleydale Builders**, 3699 Kent Rd., Stow, O., Owner Builds, **$1,500,000**, 100 HOMES, Northport Community, on Rte. 5 STOW, O. CD 4/17.

▲ **Neel Constr. Co.**, 22617 Breezewood Lane, Rocky River, O., Owner Builds, **$3,000,000**, 120 HOMES, Greenbriar Estates, on 70 acres, fronting north side of Drake Rd., between Pearl Rd and W. 103th St., STRONGSVILLE, O.

MISSISSIPPI TO ROCKIES

BUILDINGS—SLC

▲ **Minn., Minneapolis**—PARKING RAMP—La Salle Realty Co., First National Soo Line Bldg., soon lets contract, 7-level, 181 x 198 ft. parking ramp, Fifth St. and 2nd Ave. S. $1,000,000. Enco Eng. Co., 1009 Cass St., Detroit, Mich. engr. CD 7/10.

HEAVY CONSTRUCTION—LB & CA

▲ **NORTH DAKOTA**—State Hy. Dpt., Bismarck, N. D.—**William Collins & Sons, Inc.**, 500 2nd Ave., Fargo, N. D., and **Tennefos Constr. Co., Inc.**, 2504 5th Ave., Fargo, N. D., CA **$757,803**, grading, 6.979 mi. Interstate Rte. 94 west of New Salem, Proj. I-94-3(5)112 (West Part), Morton Co.;

N. D.—**Pasco Constr. Co.**, 1707 S. 1st Ave., Sioux Falls, S. D., CA **$659,726**, grading, 7.185 mi. Interstate Rte. 94 from near New Salem west, Proj. I-94-3(5)112 (East Part) Morton Co.;

N. D.—**Archie Campbell, Inc.**, New Rockford, N. D. and **John J. Mayo d/b/a Joe Mayo & Son**, Cavalier, N. D. CA **$852,372**, base, bit. surf. tr. 12.822 mi. US 85 from Watford City south, Proj. F-350(13), McKenzie Co.;

N. D.—**Struksnes Constr. Co.**, Minot, N. D. and **David & Rix**, Bismarck, N. D., CA **$663,762**, grading, tr. serv. grav. 13.597 mi. US 2 and 52 southeast of Minot, Proj. F-693 (3) and F-701(1) Ward Co.;

N. D.—**William Collins & Sons, Inc.**, 500 2nd Ave., Fargo, N. D., CA **$517,505**, sub-base, b. conc. paving 13.597 mi. US 2 and 52 southeast of Minot, Proj. F-693(3) and F-701(1) Ward Co. Grand total $3,401,168. CD 7/2, under LB.

† **American Elin Corp.**, 11 Broadway, New York, N. Y. LB **$808,900** (9 bidders), Sched. 1, twelve 320 KV-power circuit breakers for Fort Thompson Substation Transmission Div., Missouri River Basin Proj., Spec. DS-5208, SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Denver Federal Center, Denver, Colo. Bids July 21. CD 7/15.

▲ **SOUTH DAKOTA**—State Dpt. Hys., Pierre, S. D.—**Northwestern Engineering Co.**, 1311 St. Joe St., Rapid City, S. D., CA **$732,083**, base course, bit. surf. 28.537 mi. SD 24 from Billsburg to Kellars Corner, F 028-3 (2) & F 028-4 (2), Haakon and Stanley Counties;

S. D.—**Carlson-Lien Co.**, P. O. Box 1729, Rapid City, S. D., CA **$668,162**, subbase, base course, bit. surf. 10.950 mi. from N. Co. line South, Proj. F 033-1 (2) Lyman Co., Bids July 16. CD 7/22 under LB.

Heldenfels Bros., 521 McBride St., Corpus Christi, Tex., LB **$625,714**, shell-lined trench, 3rd unit sanitary sewer main laterals and Savage Lane & Kaiser Rd. to Hy. 44, CORPUS CHRISTI, TEX. City, City Hall, Corpus Christi, Tex. Reagan & McCaughan, Wilson Bldg., Corpus Christi, Tex., engrs. Bids July 22, CD 5/16/58.

▲† **Purvis Constr. Co.**, P. O. Box 64, Yardley, Wash., LB **$1,621,487**, est. $1,694,781 (6 bidders), Sundance TM SITE 201, operations area, Sundance, ENG-25-066-59-133, WYOMING. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids July 23. CD 7/6.

BUILDINGS—LB & CA

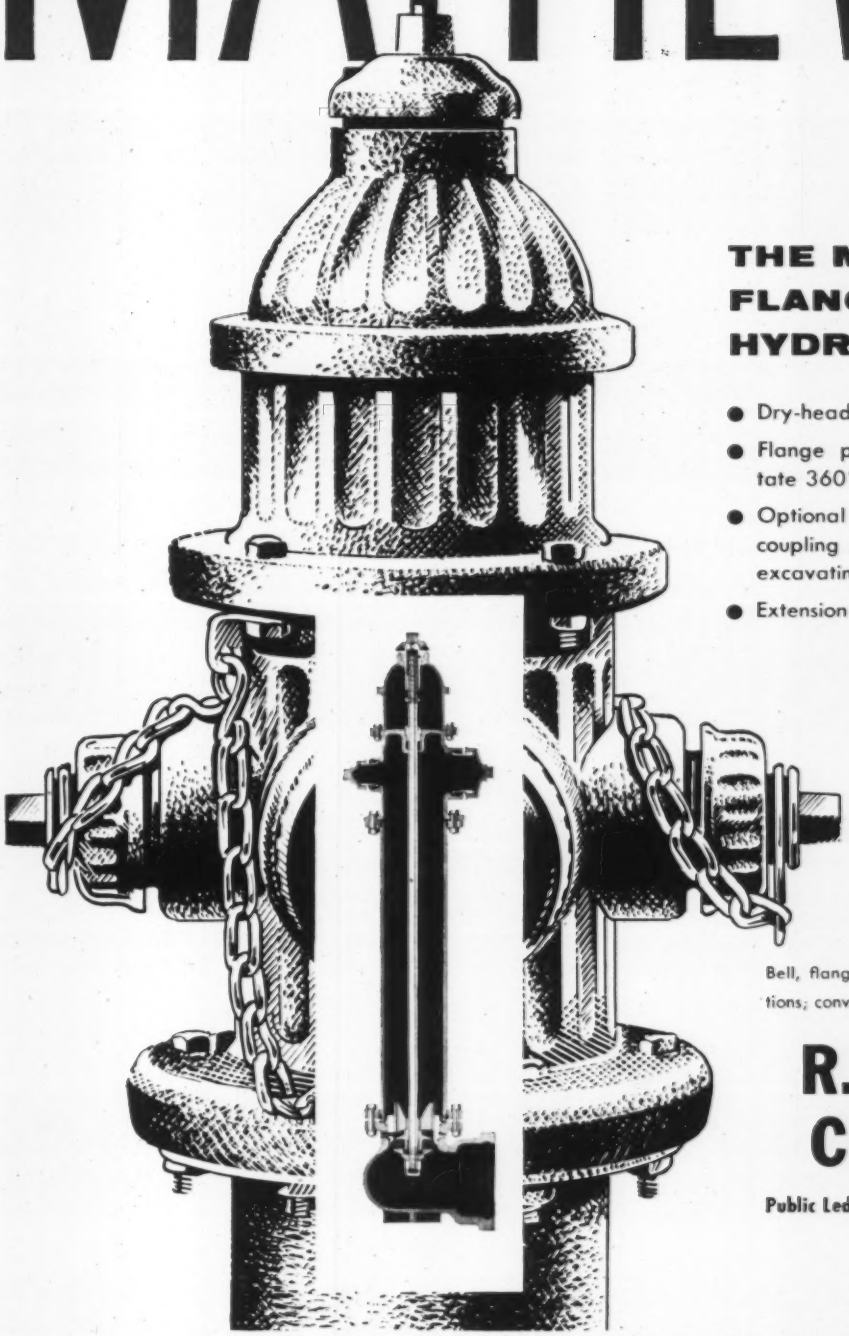
J. D. Harrold Co., 405 East Superior St., Duluth, Minn., CA **$618,254**, (12 bidders), general contract, HIGH SCHOOL, Brookston-Alborn area, Seville Rd. at Hys. 2 and 3, DULUTH, MINN. St. Louis County Bd. Educ., Court House, Duluth, Minn. Bids July 15. CD 7/23, under LB.

Regents of the University of Minnesota, 404 Administration Bldg., Minneapolis 14, Minn., cancelled bids to have been opened Aug. 11, CROP RESEARCH LABORATORY on St. Paul campus, ST. PAUL, MINN. $950,000. Will re-advertise. CD 7/15.

S. R. Brunn Constr. Co., 3500 Rainbow Blvd., Kansas City, Mo., LB **$649,975**, (9 bidders), general contract, 4 story, bsmnt., 115 x 116 ft., 43,800 sq. ft. brick NURSES DORMITORY and CLASSROOMS, KANSAS CITY, MO. Trinity Lutheran Hospital, 30 and Wyandotte Sts., Kansas City, Mo. J. R. DeRigne & Assocs., 561 Westport Rd., Kansas City, Mo., engrs. CD 10/16.

(Continued on page 92)

MATHEWS



THE MATHEWS FLANGE BARREL HYDRANT

- Dry-head construction
- Flange permits nozzle section to rotate 360°
- Optional breakable flange and stem coupling permits replacement without excavating
- Extension section available

Bell, flange or mechanical-joint pipe connections; conventional or "O" ring packings

R. D. WOOD COMPANY

Public Ledger Building, Independence Square
Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

(Continued from page 90)

Furr Food Stores, 755 South Colorado Blvd., Denver, Colo., rejected bids July 14, 2 one story, 125x184 ft. SUPERMARKET, one in Aurora, and other in DENVER, COLO. LB $607,988. CD 7/21, under LB.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **California**—BA 8/26—State Dpt. Water Resources, 1120 N. St., Sacramento, 51,000 acre foot cap. Frenchman Dam on Little Last Chance Creek, Plumas Co., unit Feather River Proj. $2,000,000. CD 10/7/57.

HEAVY CONSTRUCTION—LB & CA

† **Seventeenth Coast Guard Dist.,** Juneau, Alaska, rejected bids June 15, bldg. and utilities for Coast Guard Base, Inv. 17-39-59, ANNETTE ISLAND, ALASKA, LB $840,000. Will re-advertise. CD 6/22, under LB.

▲ **Lee Hoffman,** 415 N.W. Cedar, Beaverton, Ore., LB $2,122,881 (7 bidders), 50 mi. 6- to 27-in. sanitary sewer lines, OAK GROVE, ORE. Oak Lodge Sanitary Dist. No. 1, Oak Grove, Ore. Bids July 21. CD 7/1.

Zarubica Co., 8550 Tujunga Blvd., Sun Valley, Calif., LB $860,803, (8 bidders), Valley Outfall Relief Sewer, Section D, Unit II, LOS ANGELES, CALIF. City, City Hall, Los Angeles, Calif. Bids July 22. CD 7/6.

▲ **Daley Corp.,** P.O. Box 4067, North Park Station, San Diego, Calif., CA $1,131,960, improv. Fairmount Ave., Camino del Rio and Meade Ave. and Montezuma Rd., SAN DIEGO, CALIF. City, 1600 Pacific Hy., San Diego, Calif. Bids June 30. CD 7/7, under LB.

BUILDINGS—LB & CA

▲† **Diversified Builders,** 6855 East Rosecrans Ave., Paramount, Calif., CA $1,585,000, TEST FACILITY, Burro Flats, near Santa Suzanna, Ventura Co., CALIFORNIA. U. S. Atomic Energy Comn., 21600 Van Owen St., Canoga Park, Calif. Bids June 17. CD 6/22, under LB.

Harwick & Son, 2254 Cahuenga Blvd., Los Angeles, Calif., LB $884,000, (10 bidders), Acacia JUNIOR HIGH SCHOOL PROJ. 1, FULLERTON, CALIF. Fullerton High School Dist., 201 E. Chapman Ave., Fullerton, Calif. Bids July 21. CD 7/2.

Nomellini Constr. Co., P. O. Box 1528, Stockton, Calif., CA $890,000, two DORMITORIES and special treatment program units, Preston School of Industry, W.O. 4009GC-11, IONE, CALIF. State Div. Architecture, 1120 N. St., Sacramento, Calif. Bids June 30, awarded July 20. CD 7/9, under LB.

Aerojet General Corp., 410 Citrus Ave., Covina, Calif., Owner Builds, $650,000, 2 story OFFICE, 332 N. Irwindale, IRWINDALE, CALIF.

▲ **Nadal Baxendale, Inc.,** 6234 Wilshire Blvd., Los Angeles, Calif., CA Est. $10,000,000, 26 story OFFICE, Wilshire Blvd. and McCarthy Vista, LOS ANGELES, CALIF. Atlas Terminal Corp., c/o Charles Luckman & Assoc., archts., 9220 Sunset Blvd., Los Angeles, Calif. CD 8/5/58, under Diners Club Inc., as owner.

Morley Constr. Co., 7700 Sunset Blvd., Los Angeles 46, Calif., CA $617,300, general constr. 1 and 2 story, 49,000 sq. ft. CAFETERIA, San Fernando State Valley College, W.O. 4160GC-40. SAN FERNANDO, CALIF. State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif. Bids July 8, awarded July 21. CD 7/15, under LB.

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ **BRITISH COLUMBIA**—B. C. Govt., Parliament Bldgs., Victoria,
Peter Kiewit Sons Co. of Canada Ltd., 1587 W. 8th St., Vancouver, B. C., CA $1,183,892, constr. 2.25 mi. Trans-Canada Hy., Dewdney Dist. Awarded July 13. CD 6/29, under LB.

▲ **Tide Bay Dredging Co. Ltd., Annacis Industrial Estate Dev., New Westminster, B. C., McKenzie Barge & Derrick Co., Ltd.,** ft. Victoria Dr., Vancouver, B. C. and **General Constr. Co. Ltd.,** Granville Island, Vancouver, B. C., CA $3,311,939, two mi. rock-filled causeway two breakwaters 1000 ft. and 1,200 ft., Contract No. 1, Tsawwassen Ferry Terminal Tsawwassen (Point Roberts), VANCOUVER, B. C. Govt. of British Columbia, Parliament Bldgs., Victoria, B. C. Bids June 23, awarded July 17. CD 7/10, under LB.

▲ **Perini (Québec), Inc.,** 550 Sherbrooke St. W., Montreal, Que., LB $2,288,560, air maintenance hangar, Royal Canadian Navy Air Station, Shearwater, DARTMOUTH, N. S. Defence Constr. 1(1951) Ltd., 56 Lyon St., Ottawa, Ont. Bids July 3. CD 6/8.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto, **Hacquoil's Constr. Ltd.,** 1408 Brown St., Fort William, Ont., CA $785,087, grading, culverts, granular base, 5.5 mi. Trans-Canada Hy. 17 from Schreiber westerly to Selim diversion (Contract 59-122), Schreiber. Bids July 8, awarded July 22. CD 7/14, under LB.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto, **Keillor Constr. Co. Ltd.,** P. O. Box 126, St. Thomas, Ont. CA $776,460, grading culverts, granular base, hot, mix paving 9 mi. Hy. 3, Tillsonburg, westerly (Contract 59-63), Tillsonburg. Awarded July 22. CD 7/2, under LB.

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto, Ont.—**McNamara Road Constr. Ltd.** 42 Industrial St., Leaside, Toronto, Ont., LB $1,435,410, concrete paving, structures, 5.7 mi. Ottawa Queensway and Hy. 17A (Contract 59-111), Ottawa; LB $1,220,523, grading, culverts, 3 structures 10.6 mi. Hy. 401, Eastwood to Drumbo County Rd., structures at City Road to Drumbo railway overhead, in Blenheim County, (Contract 59-224) London;
Ont.—**H. J. McFarland Constr. Co. Ltd.,** Talbot St., Picton, Ont., LB $217,020, resurf. Hy. 2 12 mi. from Gananoque easterly to Watertown (Contract 59-580), Gananoque. CD 12/8/50.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto, **Peacock & McQuigge Ltd.,** 1109 Millwood Rd., Toronto, Ont., CA $879,722, grading, culverts, two bridges, Hy. 401 from new Hy. 38 to Odessa and bridges at Collins Creek and Milhaven Creek (Contract 59-112), Odessa. Bids July 15, awarded July 22. CD 7/21, under LB.

▲ **United Dredging Ltd.,** 5035 Western Ave., Montreal, Que., CA $669,000, dredging at Sections 65-29, Montreal Harbor, MONTREAL, QUE. National Harbors Bd., West Block, Ottawa, Ont. Awarded July 20. CD 6/25, under LB;
J. D. Stieling Ltd., 2199 Jarry St. E., Montreal, Que., CA $527,856, wharf exten., Section 100-101, Montreal Harbor, (Montreal, Que.). CD 6/30, under LB.

BUILDINGS—LB & CA

Eastern Woodworkers Ltd., New Glasgow, N.S., CA Est. $750,000, 3 story, 132 x 277 ft., concrete, brick WAREHOUSE and OFFICE, HALIFAX, N. S. Dpt. P. Wks., Parliament Bldgs., Halifax, N. S. Awarded July 17.

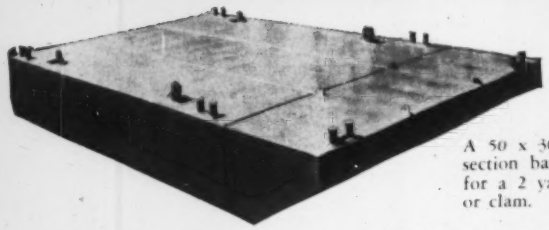
▲ **Harley-Gregoris Constr. Ltd.,** 321 Bloor St. E., Toronto, Ont., LB $1,226,154 (9 bidders), two 6 story SENIOR CITIZENS APARTMENTS, Lawrence Ave. E., near Scarborough General Hospital; LB $593,000 (10 bidders), six 16 suite WESTACRES SENIOR CITIZENS APARTMENTS, Kipling Ave. and Hinton Rd., TORONTO, ONT. Metropolitan Toronto Housing Co. Ltd. and Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. Bids July 20. CD 7/9.

Immeubles Murdock Ltee, 110 Racine St. E., Chicoutimi, Que., LB $995,965 (5 bidders), SECONDARY SCHOOL for BOYS, Begin St., CHICOUTIMI, QUE. Chicoutimi School Bd., 36 Jacques Cartier St. E., Chicoutimi, Que. Bids May 25. CD 5/21.

J. H. Dupuis Ltd., 3333 Viau St., Montreal, Que., LB $755,215 (10 bidders), PARK SCHOOL, Beauharnois and Dorval Sts., MONTREAL, QUE. Montreal Catholic School Comn., 3737 Sherbrooke St. E., Montreal, Que. Bids July 21. CD 7/10.

▲ **J. G. Fitzpatrick Ltd.,** 5151 Western Ave., Montreal, Que., LB $1,612,900 (9 bidders), HIGH SCHOOL and RESIDENCE, Mary Mount School, Westhill Park near Cote St. Luc Rd., MONTREAL, QUE. Montreal Catholic School Comn., 3737 Sherbrooke St. E., Montreal, Que. Bids July 21. CD 7/2.

MANITOWOC
SECTIONAL BARGES



A 50 x 30 foot four-section barge suitable for a 2 yard dragline or clam.

- For floating all sizes of lift cranes, clams, draglines and other contractors' equipment.
- Easily assembled or knocked down for moving by rail or highway.
- Sections can be assembled into numerous barge sizes.
- Spuds, deck fittings, loading ramps and other accessories available.

Above, a sectional barge completely assembled with crane, spuds and deck equipment ready to go to work.

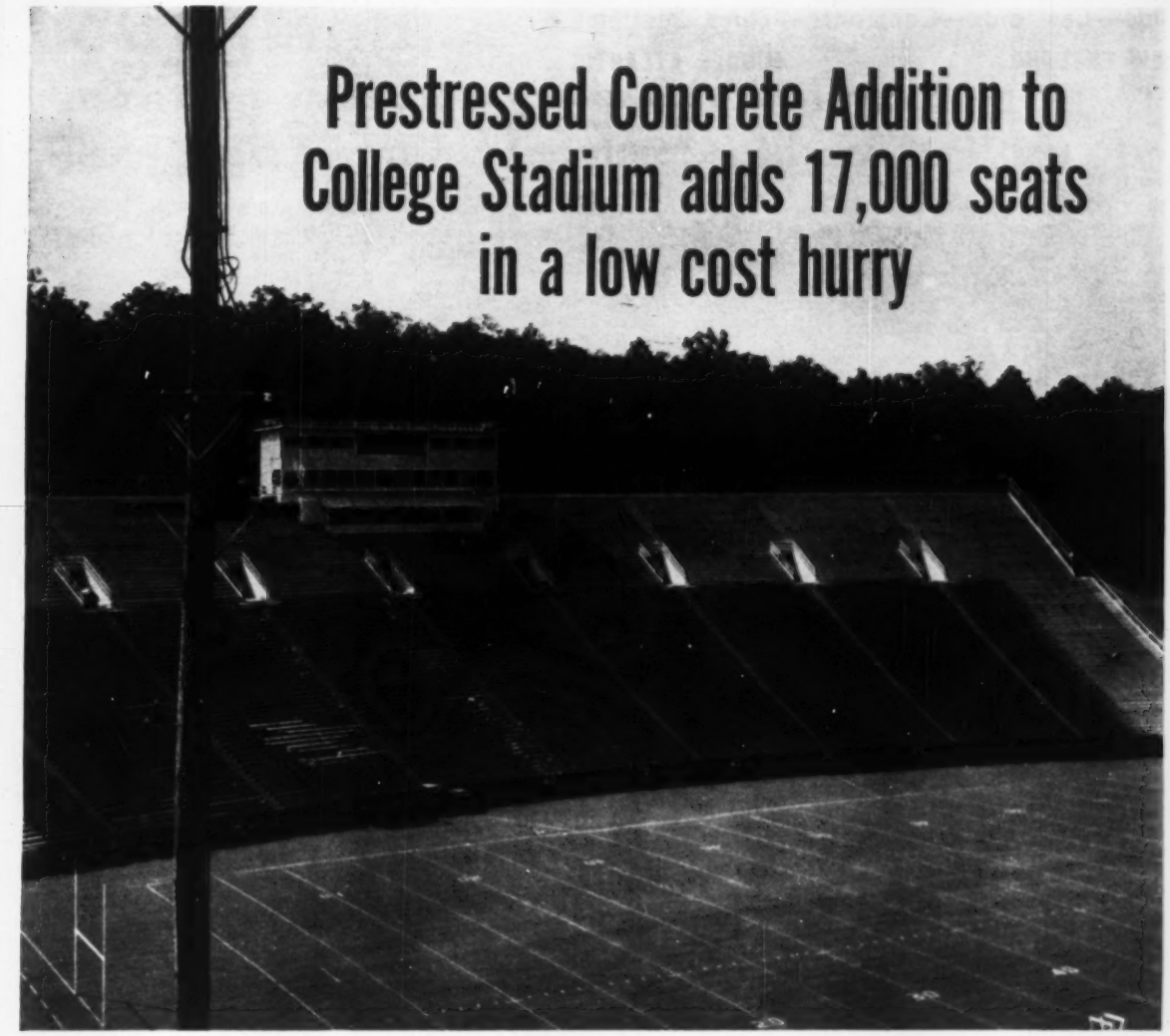
Designed for the contractor who needs low cost, flexible and portable floating equipment, a typical clam operation performed from a sectional barge.

Write for additional information and prices.

Sold direct or through Manitowoc Engineering Corporation distributors.

MANITOWOC SHIPBUILDING INC.
MANITOWOC • WISCONSIN

Prestressed Concrete Addition to College Stadium adds 17,000 seats in a low cost hurry



Five simple, speedy steps, via prestressed concrete, enlarged the Clemson College Stadium, Clemson, S.C. by some 17,000-plus seating capacity.

Designed by the engineering and architectural staff members of the college with an eye to economy and construction speed, the new structure was brought in handsomely on both counts.

From finished design to completed structure, five simple steps were involved:

1. Pour reinforced concrete frames in place and allow to cure.
2. Erect precast, pretensioned channel sections (fabricated at local casting bed with Roebling prestressed strand and delivered to job site by truck).
3. Weld preplaced plates in channel sections to preplaced plates in concrete frames (see photo at right).
4. Pour concrete steps on frames between channel sections.
5. Place wooden seats on channel sections.

The result is a no-maintenance, fireproof structure brought in at a cost that compares favorably with any other method to which the same requisites—low maintenance, fireproofness, construction speed and depreciation—were applied.

Welder joins channel sections to concrete frame. *Prestressed Fabricator:* Ballard-Rice Prestressed Concrete Co., Greenville, S.C. *Stress Relieved Strand* by John A. Roebling's Sons Corporation, Trenton 2, N. J.

The above requirements are in no way "collegiate." They can be—and are being—met by prestressed concrete in all types of structures. Transportation terminals, motels, garages, warehouses, office buildings, piers and causeways to name a few.

The interest with which this remarkable construction method is being met is in direct ratio to the benefits it offers the builder. Impressive. We at Roebling have fostered this method since we introduced it into this country. Consequently, we have a large body of information, data and experience covering all phases of prestressed concrete. We wish immediately to share any or all of this data with you. If your interest is general or specific, you have only to write Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, N. J. for information.

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Bids—Low Bids—Contracts—Third Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

August 17 Connecticut

STREETS AND ROADS

August 11 Massachusetts August 17 Connecticut

HEAVY CONSTRUCTION—LB & CA

▲ **Walter Reed Corp.,** 161 Mass. Ave., Boston, Mass., CA **$1,298,814,** est. approx. $1,250,000, reconstruct Revere Beach Parkway, Contr. 1145, Revere, MASSACHUSETTS, Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass., Bids July 14, awarded July 23. CD 7/20, under LB.

BUILDINGS—LB & CA

▲ **Frank R. Wood,** 150 S. Lakewood Circle, Manchester, Conn., Owner Builds, **$1,050,000,** 105 HOUSES, "Wood Farms," Goodwin St., EAST HARTFORD, CONN. Arnold Lawrence, 571 Porter St., Manchester, Conn., archt.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

August 20 New Jersey August 21 Pennsylvania

August 27 New York and Ontario

BUILDINGS—BA

▲ **N. Y., Deer Park**—SCHOOL—BA 8/11—Bd. Educ., Union Free School Dist. 7, Deer Park Ave., Senior High School. $3,000,000. Frederick P. Wiedersum Assocs., 65 Roosevelt Ave., Valley Stream, archts. Clyde M. Alston, 397 Clinton St., Hempstead, mech. engr. David R. Maimoan, 217-39, 53rd Ave., Bayside, structural engr.

▲ **N. J., Morristown**—STORE—BA 8/25—L. Bamberger & Co., Market St., Newark, store addn., Park Place, $3,600,000. Chapman, Evans & Delehanty, 50 Broadway, New York, N. Y., archts. CD 4/14.

REDA SUPPLIES 21,000 GALLONS OF WATER PER HOUR

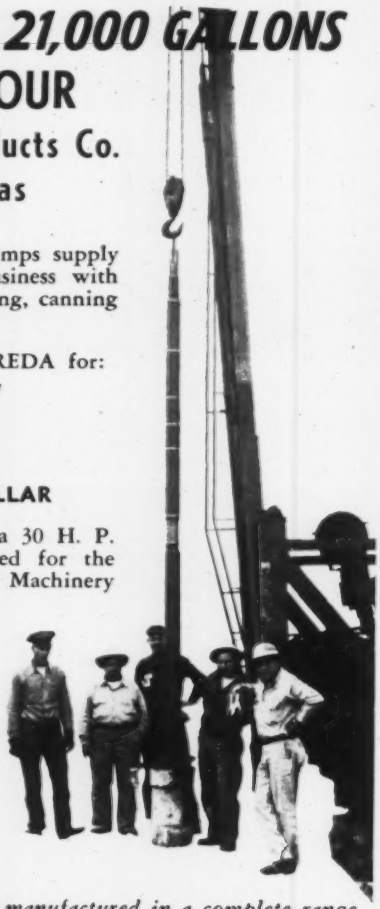
for Kimbell Food Products Co. Fort Worth, Texas

Three Reda Submergible Pumps supply this well known Ft. Worth business with plenty of water for food processing, canning and bottling operations.

The Kimbell people chose REDA for:

- **Dependable water supply**
- **Low Maintenance Cost**
- **Low Installation Cost**
- **Low Operating Cost**
- **MORE WATER PER DOLLAR**

The installation pictured is a 30 H. P. Reda unit, one of three installed for the Kimbell Company by the Well Machinery & Supply Co. of Ft. Worth.



INSTALLATION DATA:

PUMPING DEPTH: 452 ft. (water pumped to tower 110 ft. high)

CASING: 10-inch steel casing

POWER REQUIRED: 440 volts a. c., 3 phase, 60 cycle

MAXIMUM WATER REQUIREMENTS: 210,000 gallons per day

WATER SUPPLIED BY REDA: 21,000 gallons per hour

PUMPS INSTALLED: 30 H. P. Reda unit supplying 150 g.p.m.
22½ H. P. Reda unit supplying 100 g.p.m.
20 H. P. Reda unit supplying 100 g.p.m.

Reda Submergible Pumps are manufactured in a complete range of sizes from ⅓ to over 300 H. P., with capacities from 5 to over 1000 gallons per minute, from depths as great as 10,000 feet.

Contact Reda TODAY for Submergible pumps to meet your requirements!

SIGN OF QUALITY SUBMERGIBLE REDA PUMPS

REDA PUMP COMPANY

BARTLESVILLE, OKLAHOMA

Manufacturers of submergible motors and pumps for over 35 years — for oil, brine and water wells, gasoline and jet fuel

HEAVY CONSTRUCTION—LB & CA

▲ **Zara Contg. Co., Inc.,** Engel St., Hicksville, N. Y., LB **$4,760,980** (3 bidders), Contr. No. 1002-2-ELMA-4A, lateral sewers, Lakeview and West Hempstead, Sewage Collection Dist. No. 2-ELM, MINEOLA, N. Y. Dpt. P. Wks., Nassau Co., Old County Courthouse, Mineola, N. Y. Bids July 28. CD 7/20.

▲ **Nissley Constr. Co.,** Landisville, Pa., LB **$3,099,530** (15 bidders), Section 1G, Jones Falls Expressway, BALTIMORE, MD. City, Bureau Highways, Expressway Div., 303 Municipal Bldg., Baltimore 2, Md. Bids July 29. CD 7/14.

BUILDINGS—LB & CA

▲ **E. I. duPont de Nemours & Co.,** DuPont Bldg., Wilmington, Del. Owner Builds, METALLURGICAL RESEARCH CENTER for development high temperature metals for jet engineers, rockets and missiles BALTIMORE, MD.

▲ **George A. Fuller Constr. Co.,** Munsey Bldg., Wash., D. C., CA **$6,000,000,** 12 story OFFICE BLDG., STORES and GARAGE, 808 17 St. N. W., WASH., D. C. 808- 17th Street Assocs., 1726 H. St. N. W., Wash., D. C. CD 5/13, under CA.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

August 11 West Virginia

STREETS AND ROADS

August 11 West Virginia August 13 Louisiana

▲ **Ky., Shively**—BA 9/21—City, City Hall, sewerage sys. and disposal plant, incl. 57 mi. sewer line, 2.15 mi. force main, 18 running station, 4.4 mi. force main to plant, 2.4 mi. force main to river, $4,500,000. Extended date. J. Stephen, Watkins & Robert E. Martin, 5402 Preston Hy., Louisville, engrs. CD 6/8.

BUILDINGS—BA

▲ **Ala., Bessemer**—HOUSING—BA 8/19—City Housing Auth., 207 North 17 St., low rent housing Projects Ala. 125-1 and 125-2. Plans deposit $100. Charles J. McCauley, 1917 Fifth Ave., South Birmingham, archt. CD 7/21/58.

HEAVY CONSTRUCTION—LB & CA

▲ **FLORIDA**—State Rd. Dpt., Holland Bldg., Tallahassee, Bids opened 7/28,

Fla.—**Ballenger Paving, Inc. & Structures, Inc.,** Box 927, Greenville, S. C., LB **$3,317,779** (12 bidders), limerock base, Type 1 b. conc. surf. course with binder course limerock base shoulders Type 1-A surf. tr., 1 concrete box culverts bridge, 5.724 mi. SR 400, FAI Proj. No. I-4-1(17) 46, Job No. 16320-3401, Polk Co.; LB **$1,384,716** (12 bidders), 4-lane divided limerock base with Type 1 b. conc. surf. course and binder course limerock base shoulders with Type 1-A surf. tr., etc., SR 400 FAI Proj. No. I-4-1 (18) 52, Job No. 16320-3402, Polk Co., CD 7/7.

Fla.—**Cone Bros. Contr. Co.,** Box 1259, Tampa 1, Fla., LB **$1,415,716,** (12 bidders), 4-lane divided limerock base, type 1 b. conc. surf. course with binder course stabilized base shoulder with type 1-A surf. tr. 6.06 mi. SR 400 FAI Proj. No. 1-4-2(18) 80, Jobs Nos. 92130-3402 and 75280-3403, Osceola and Orange Counties;

Fla.—**Smith Constr. Co. of Florida,** Drawer 1831, Pensacola, Fla., LB **$1,474,999,** (3 bidders), stabilized base Type 2 surf. tr. Job No. 58640-3602 SR S-399, stabilized base with Type 2 surf. tr. 10.958 mi. and 4.273 mi. respectively, SR S-399 State Proj. Job No. 48530-3601, Escambia and Santa Rosa Counties.

▲† **George A. Fuller Co.,** 1 Peachtree Blvd., Atlanta, Ga., CA **$5,317,195,** minute-man facilities, Patrick Air Force Base, COCOA, FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. CD 6/4.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

August 12 Michigan August 18 Wisconsin

STREETS AND ROADS

August 12, 19 Michigan August 18 Wisconsin

HEAVY CONSTRUCTION—LB & CA

▲ **Consolidated Constr. Co.,** 101 S. Wells St., Chicago 6, Ill., CA **$3,882,577,** est. $942,000, paving, grading, utilities, b. conc. paving, storm sewers, O'Hare International Airport, Spec. 80.85-59-100, Park Ridge, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. CD 7/2, under LB.

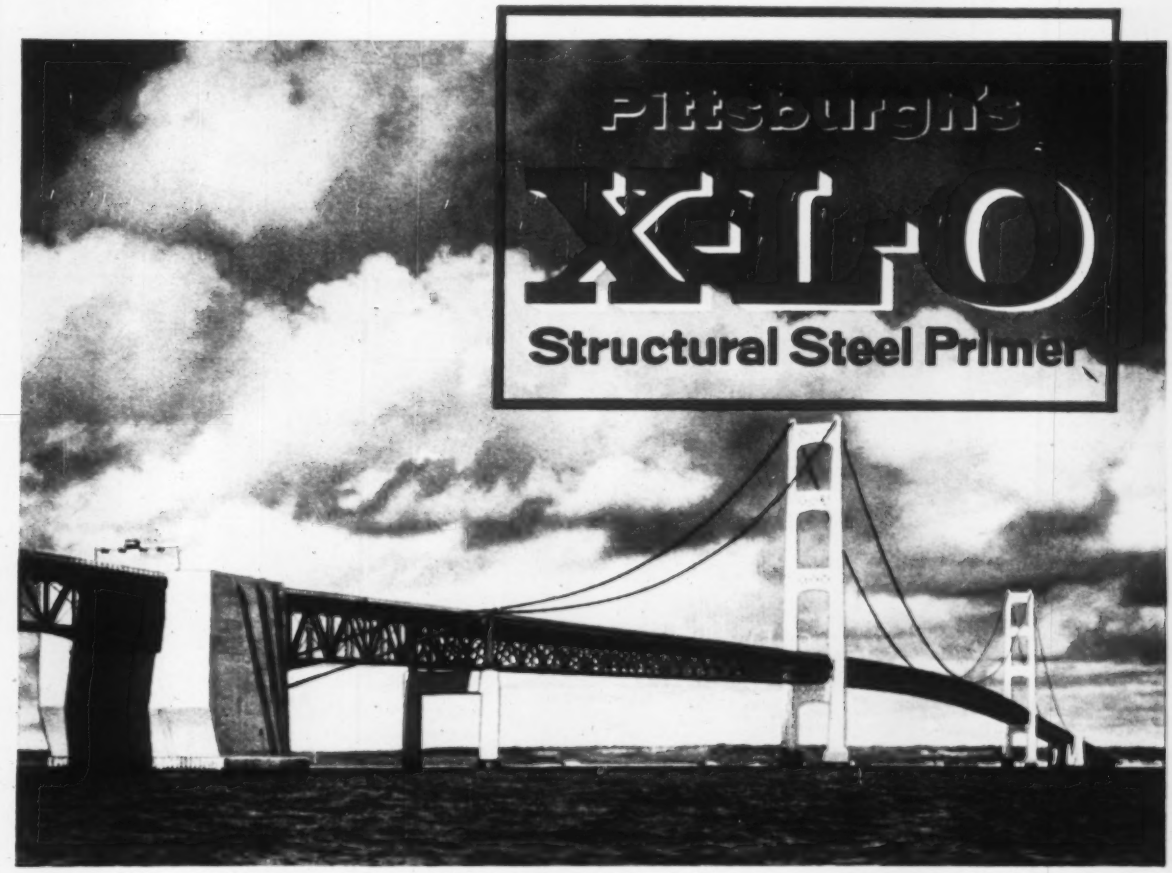
▲ **WISCONSIN AND MINNESOTA**—State Hy. Comm. of Wis. and Comr. Hys. of Minn., Room 622, State Office Bldg., Madison, Wis.,

rejected bids June 2, Connor's Point and Superior approach, superstructure metal work, The Duluth-Superior Interstate Bridge, Interstate Hy. 535, Contrs. 3 and 4 (combination), Proj. I-535-7(7)262, St. Louis Co., Minn., and Douglas Co., Wis. LB **$2,997,654.** CD 6/5, under LB.

(Continued on page 98)

Long-Lasting Protection

against weather-wear and corrosion assured for mammoth Mackinac Bridge



Dramatic example of the two-way protection which Pittsburgh's X-L-O Primer gives to structural steel is the mammoth Mackinac Bridge linking Michigan's upper and lower peninsulas. This colossal structure was designed by Dr. D. B. Steinman.

• **Total length of this giant project** is 26,444 feet, including approach spans and causeway. The suspension bridge portion, between the two cable anchorages, is 8,614 feet. All structural steel and major portions of foundation caissons and cofferdams were fabricated by the American Bridge Division, United States Steel Corporation.

• **X-L-O Primer proved itself** to be a remarkable protective coating for the steel during its erection. Costly metal cleaning was eliminated by shop-coating with X-L-O. Its excellent wetting assured uniform coverage even over mill scale surface irregularities.

• **So thorough was this protection** against corrosion and embrittlement of film of this vast tonnage of erected steel that, even after twenty months' exposure, only a small amount of field cleaning and spot priming was needed.

• **X-L-O continues to demonstrate** its excellence as a foundation which helps final coats resist damaging weather-wear. Why not call on us for advice or suggestions to protect structural steel on your jobs? Write, wire or phone Pittsburgh Plate Glass Company, Industrial Finishes, 1 Gateway Center, Pittsburgh, Pa.

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for
big,
fast,
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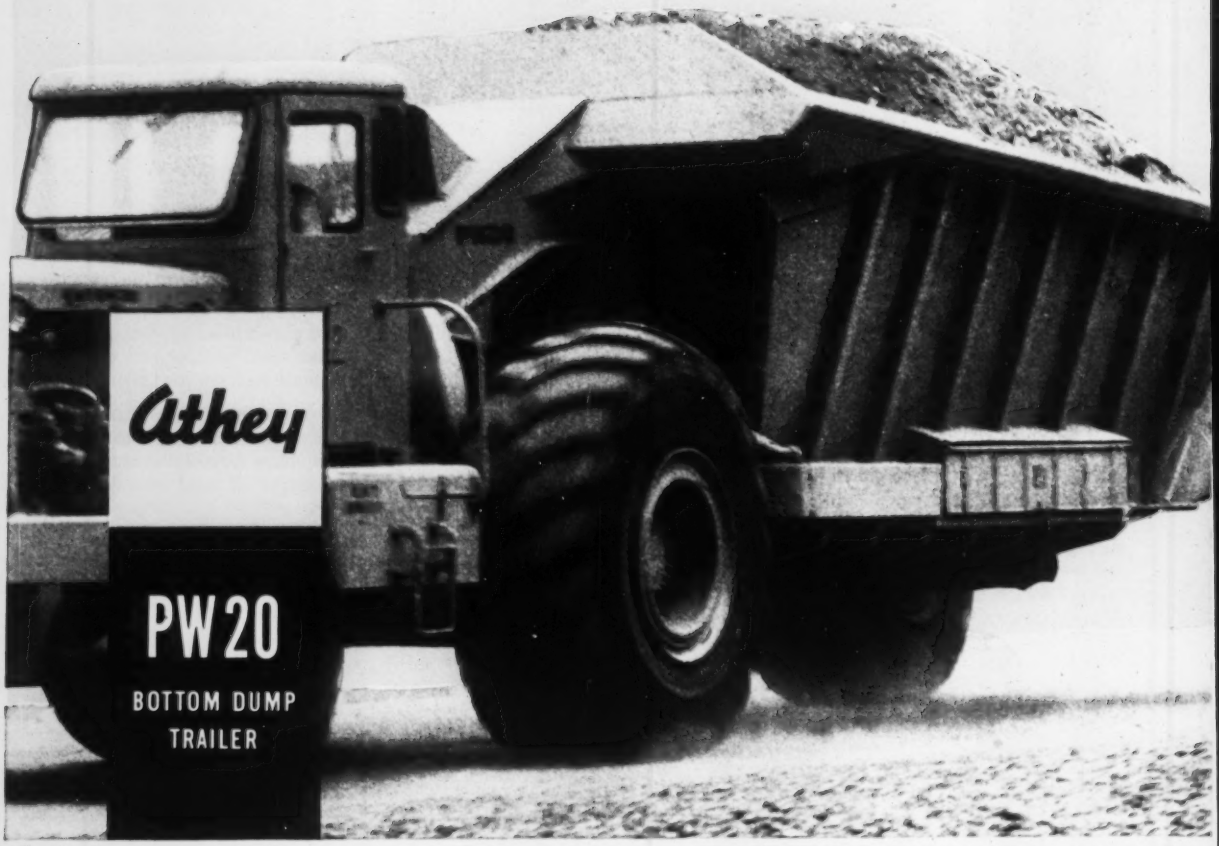
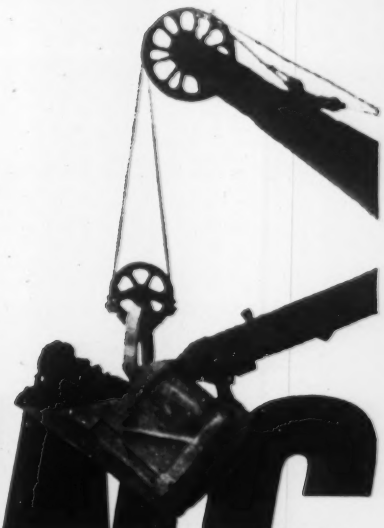
EARTH



Athey PRODUCTS CORPORATION, 5631 WEST 65TH STREET, CHICAGO 38, ILLINOIS



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PW20 IDEAS FROM AFIELD! Job reports show how contractors use these big, fast earthmovers to make yardage costs nosedive! Write for "PW20 Job Report": Athey Products Corporation, 5631 West 65th Street, Chicago 38, Illinois.

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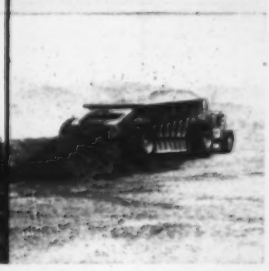
3 Doors for No Hangup, No Tieup!—PW20's exclusive rear door, steep sides and widest-of-all bottom doors, end hangup—instant dumping or spreading. Rideaway is effortless with five-foot rear clearance!



DESIGNERS AND MANUFACTURERS OF HEAVY-DUTY LOADING AND HAULING EQUIPMENT

Jaeger pays off with 600 cfm at 1700 rpm

This Jaeger rotary compressor, powered with the same GM 6-71 diesel used in other makes, produces 600 cfm of air with 100 fewer revolutions (1700 rpm instead of 1800), *consuming less than 1¼ lbs. of fuel.* Think of the long-term saving in fuel, and engine and compressor life. Other Jaeger sizes are comparably efficient. See your Jaeger distributor, or send for Catalog.

The Jaeger Machine Company, 200 Dublin Ave., Columbus 16, Ohio

FOR TRULY

UNDISTURBED SAMPLES
FROM DIFFICULT FORMATIONS

ACKER-DENISON CORE BARRELS

THE ACKER-DENISON CORE BARREL PERFORMS WHERE OTHERS FAIL

The ability of the Acker-Denison Core Barrel to obtain **undisturbed samples** from sand, hard clays, silt and other difficult cohesive soil conditions accounts for its worldwide acceptance by Soil Engineers.

ACKER-DENISON CORE BARREL —PROVED AND IMPROVED

While the basic features of the original Denison are duplicated in the samplers manufactured by Acker, numerous improvements suggested by Acker's 40 years of soil sampling experience are incorporated in the new Acker-Denison. It is these improvements that make the Acker-Denison even more useful and efficient than before!

Remember, no other manufacturer can offer the improved performance and exclusive patented features of Acker's new Denison Core Barrel. This proud achievement of Acker development and progress is exclusively Acker!

Write for Free Copy of Bulletin 1100. ENR

ACKER DRILL CO., INC.
P. O. BOX 830 • SCRANTON 2, PA.

(Continued from page 94)

BUILDINGS—LB & CA

▲ **Presbitero & Sons, Inc.,** 3824 W. 63rd St., Chicago, Ill., CA **$10,000,000,** 500 HOMES, area of Crawford and 105th St., BLUE ISLAND, ILL. Somerset Homes, Inc., 10224 S. Halsted St., Chicago, Ill.

▲ **Joseph J. Duffy Co.,** 4994 N. Elston Ave., Chicago, Ill., CA **$4,727,153,** Holy Family HOSPITAL and SERVICE, DES PLAINES, ILL. Sisters of Nazareth, N. River Rd., Des Plaines, Ill. CD 5/26, under LB.

▲ **Ragmar Benson Co.,** 4744 W. Rice St., Chicago, Ill. CA **$3,000,000,** ENGINEERING and OFFICE BLDG., FRANKLIN PARK, ILL. Motorola, Inc., 4501 August Blvd., Chicago, Ill. Shaw, Metz, Dolio, 208 LaSalle St., Chicago, Ill., archts. Awarded July 27.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
August 13 Kansas August 27 South Dakota
STREETS AND ROADS
August 20 Kansas August 27 South Dakota

▲ **Colo., Denver**—BA 10/1—Denver Bd. Water Comrs., 114 West Colfax, Alternate 1, approx. 96 ft. high, Alternate 2, approx. 231 ft. high Dillon Dam, Dillon. $13,700,000-$26,100,000. Tipton & Kaimbach, Insurance Bldg., engrs. CD 1/14.

HEAVY CONSTRUCTION—LB & CA

▲ **Millstone Constr., Inc.,** 8510 Eager Rd., St. Louis 17, Mo., CA Est. **$3,000,000,** 17 story cooperative APARTMENT, southwest corner Skinner Blvd. and Southwood Ave., ST. LOUIS, MO. Owner, c/o Frank Weinberg, 602 Old Bonhomme Rd., St. Louis 24, Mo.

▲ **TEXAS**—State Hy. Comn., Austin,
Texas Gulf Constr. Co., Inc., 2215½ Ave. C, Galveston, Tex., CA **$3,634,281,** Galveston Bay Causeway 2.005 mi. Hy. I. H. 45, Proj. I 45-1 (36) 002, Galveston Co. Bids July 21. CD 7/24, under LB.

BUILDINGS—LB & CA

▲† **Fort Sill Assocs.,** 2570 S. Harvard St., Tulsa, Okla. CA **$5,568,100,** 349 unit CAPEHART HOUSING, FORT SILL, OKLA. U. S. Eng., Box 61, Tulsa, Okla. CD 7/2, under LB.

▲ **J. H. Pomeroy & Co., Inc.,** 210 Montgomery St., San Francisco, Calif., CA Total est. **$3,000,000,** general contract URANIUM MILL in Gas Hills, 75 mi. west of Casper, WYOMING, Glove Mining Co., and Union Carbide Nuclear Co., Grand Junction, Colo., (sub. Union Carbide Corp.) 30 E. 42 St., New York, N. Y.;
Dresser-Ideco Co., 875 Michigan Ave., Columbus, O., CA, steel erection for uranimum mill (Wyoming).
Witt Constr. Co., 1487 S. State St., Provo, Utah, CA fdns., for uranium mill (Wyoming).

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
August 19 California
STREETS AND ROADS
August 18 Washington August 19, 20, 26, 27 California

HEAVY CONSTRUCTION—LB & CA

▲ **Gordon H. Ball, Gordon H. Ball, Inc., Ball & Simpson, and Gates & Fox,** 685 Delaware St., Berkeley, Calif., LB **$5,720,320** (12 bidders), boring, lining, grading 2 tunnels to relocate Western Pacific R.R. tracks near Oroville, Feather River Proj., CALIFORNIA State Dpt. Water Resources, 1120 N. St., Sacramento, Calif. Bids July 29. CD 7/10.

BUILDINGS—LB & CA

▲† **Chris Berg, Inc.,** 2730 Westlake North, Seattle, Wash., CA **$3,023,204,** tracking and DATA ACQUISITION STATION, Donnelley Flats, FORT GREELEY, ALASKA. U. S. Eng., P.O. Box 7002, Anchorage, Alaska. Bids July 23. CD 7/27; under LB.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
August 12, 26 Ontario August 14 British Columbia

BUILDINGS—LB & CA

▲ **Canadian Bechtel Ltd.,** Suite 1800, 25 King St. W., Toronto, Ont., CA Est. **$10,000,000,** steel pipe MILL to produce pipe up to and incl. 42 in. diam., CAMROSE, ALTA. Camrose Tubes Ltd., Camrose, Alta., subsidiary Page-Hershey Tubes Ltd., 100 Church St., Toronto, Ont. and Steel Co. of Canada Ltd., Wilcox St., Hamilton, Ont. CD 5/14, under Alta., Edmonton.

FOREIGN

HEAVY CONSTRUCTION—LB & CA

▲ **Societe Francaise D'Enterprises de Dragages et de Travaux Publics,** 5 Queens Rd., Hong Kong, CA **$5,700,000,** 176 ft. high main gravity dam at Shek Pik Reservoir, Lantao Island, HONG KONG. Bd. Colonial Secretariia, Lower Albert Rd., Hong Kong. Bids May 22. CD 3/16.

(Proposal Advertisements see pp. 112 to 114)

It's a bulldozer with exclusive "radius control" of dozing depth which allows you to bulldoze with inch-close accuracy.

It's a scraper with the stripping ability and fast, live "boiling action" of large, expensive carry-type earthmoving scrapers.

It's a Skid-Shovel with patented pry-over-shoe break-out action which gives over 5½ tons of break-out force, for prying out stubborn materials, stumps, and boulders.

It's a clamshell with exclusive ability to "surround" loose materials for loading, and to dump sticky materials through the bottom of the bucket.

New T-340 FOUR-IN-ONE gives you versatility unlimited in ¾ cu yd* size!

Now you can have four-machine utility at the lowest cost ever! New T-340 International Drott Four-In-One combines in one machine the actions of front-end loader, dozer, carry-type scraper, and many-purpose clamshell. With these four machine actions in one, you can handle dozens of specialized jobs single-purpose rigs can't even touch!

The Four-In-One with the new 31 dhp International T-340 crawler makes an unbeatable team for lowest-cost earthmoving and materials handling. The T-340 delivers the most push and pull-power in its size class. Famous Four-In-One Skid-Shovel versatility has never been equaled by any other loader on the market. Together, the T-340 and Four-In-One give you a wider job range and greater earning capacity than ever before available in the small crawler loader field.

Find out first hand . . . see the IH dealer nearest you! For his name, and specification folder, write International Harvester Company, Dept. ENR-8, P.O. Box 7333, Chicago 80, Illinois.

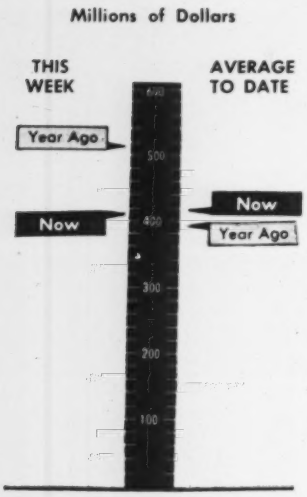
*⅞ *cu yd, heaped.*

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL® DROTT®

Construction Scoreboard

CONTRACTS ...



AMOUNT OF CONTRACTS LET

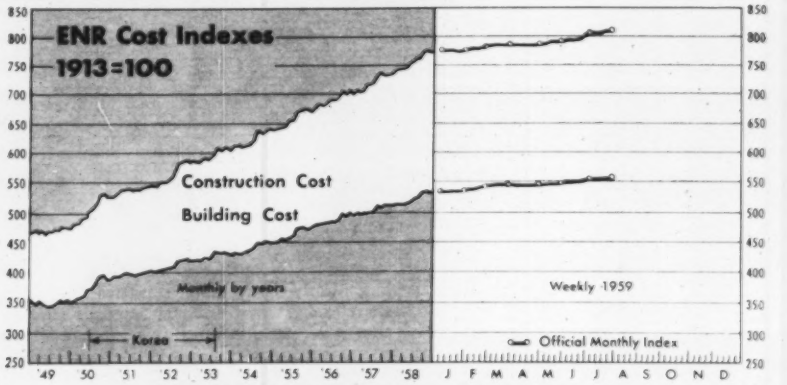
	This Week	Cum. 32 wks 1959	Chge '58-'59 %
	millions		
All Heavy Constr.	$411.7	$13,241.8	+ 5
By Ownership			
PRIVATE	197.0	6,392.7	+23
PUBLIC	214.7	6,849.1	− 8
State & Municipal	175.6	4,908.5	− 7
Federal	39.1	1,940.6	−10
By Type of Work			
PUBLIC			
Waterworks	3.6	271.8	+30
Sewerage	8.8	412.9	+11
Bridges*	41.7	522.7	+18
Highways	74.4	2,006.9	− 3
Earthwork, Dams & Waterways	6.1	581.1	−22
Buildings			
Excl. Housing	47.6	1,694.7	0
Housing	1.9	463.1	−48
Unclassified	30.6	903.3	−10
PRIVATE			
Buildings			
Mass Housing	94.8	2,941.5	+18
Commercial	53.6	1,443.2	+20
Industrial	42.5	1,688.0	+38
Unclassified	6.1	312.6	+ 9

*Includes private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

CAPITAL . . .

New Capital For Construction	Week of July 30 millions	Cum. 31 wks 1959	Chge '58-'59 %
Corporate Securities	$ 70.3	$2,422.7	−30
State and Municipal:			
All except housing	76.4	3,808.7	− 6
Housing	....	75.2	+122
Federal Loans	2.1	89.9	−25
Federal Aid	....	18.0	....
Total Nonfederal	$148.9	$6,414.5	−16
Federal Appropriations:			
Projects in U. S.	$127.5	$309.8	−64
Outside U. S.	1.2	1.5	−76
Total New Capital	$227.5	$6,725.8	−21



CURRENT COST INDEXES

ENR INDEXES (1913=100), 20-cities' average	Week of July 30* 1959	% Change from July 2 1959	% Change from July 31 1958
Construction Cost	811.15	+0.6	+6.1
Building Cost	554.31	+0.5	+5.5

* Official Monthly Index for August

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518

WAGE RATES, 20-cities' average

	August 1959	% Change from July 1959	% Change from August 1958
Common	$2.619	+0.6	+6.1
Skilled (average 3 trades)	3.904	+0.5	+4.8
Bricklayers	4.152	+0.2	+4.1
Structural Ironworkers	3.919	+0.5	+5.7
Carpenters	3.644	+0.6	+4.8

MATERIAL PRICES, 20-cities' average

Structural Steel (average 3 mills), per cwt	5.50	0	+4.3
Lumber, 2x4 Fir, per M fbm	125.71	+0.7	+9.9
Lumber, 2x4 Pine per M fbm	110.70	+1.2	+9.1
Cement, bulk, per bbl	3.955	−0.3	−0.4
Sand, per ton	2.475	0	−2.0
Ready-mixed concrete, per cu yd	14.06	+0.5	+1.9
Gypsum sheathing, ½"x2'x8', per Msf*	63.03	+0.2	+0.2
Fiber board sheathing, ½" sq. ed., per Msf*	72.53	+1.2	+1.6
Mineral wool insulation, 3' batts, per Msf*	68.53	−2.1	−2.8
Crushed stone, 1½", per ton, CL	2.694	0	−5.1
Concrete blocks, sand/gravel, 8"x8"x16", each*	.232	+1.3	+1.8

	July 1959	June 1959	July 1958
Brick, common per M	39.213	+1.4	+4.6
Lime, hydrated finishing, per ton, CL	39.027	−0.2	+5.7
Structural clay tile, 3x12x12", per M, 2,000 up*	184.69	+1.2	+0.5
Vitrified clay sewer pipe, std 12", per ft	1.3537	+0.8	+2.6
Concrete sewer pipe, 12", per ft	1.3033	−2.9	+1.0

*Delivered, trucklots

ENR INDEX REVIEW

	Construction Cost 1913=100	Construction Cost 1949=100	Building Cost 1913=100	Building Cost 1949=100	Volume 1913=100	Volume 1949=100
Aug	764.44	160.25	525.62	149.41	575	166
Sept	773.47	162.15	535.02	152.09	541	156
Oct	775.30	162.53	536.53	152.51	446	129
Nov	774.12	162.28	534.96	152.07	384	111
Dec	773.81	162.22	534.79	152.02	466	135
1958 Average	**759.16**	**159.15**	**524.68**	**149.15**	**531**	**153**
1959						
Jan	778.28	163.15	536.23	152.43	460	133
Feb	778.75	163.25	537.25	152.72	472	136
Mar	781.35	163.80	540.32	153.59	586	169
Apr	784.41	164.44	542.93	154.33	532	154
May	790.37	165.69	544.44	154.76	700	202
Jun	795.16	166.69	548.35	155.87	650	188
July	806.69	169.11	551.74	156.84	671	194
Aug	811.15	170.04	554.31	157.60	...	...

engine power BY CATERPILLAR

NEW

Caterpillar announces the D320—a high performance, lightweight, compact 120 HP Diesel Engine for ¾ yard excavators, small portable rock crushers, road rollers and 250 CFM rotary compressors. The D320 Electric Set is ideal for area lighting, standby and portable batching plants.

The Caterpillar D320 is a brand new four-cycle, four-cylinder, valve-in-head, precombustion chamber, turbo-charged diesel. It is the most modern package of 120 HP you can find to power your equipment. As an electric set, it gives you 40 KW in a compact configuration.

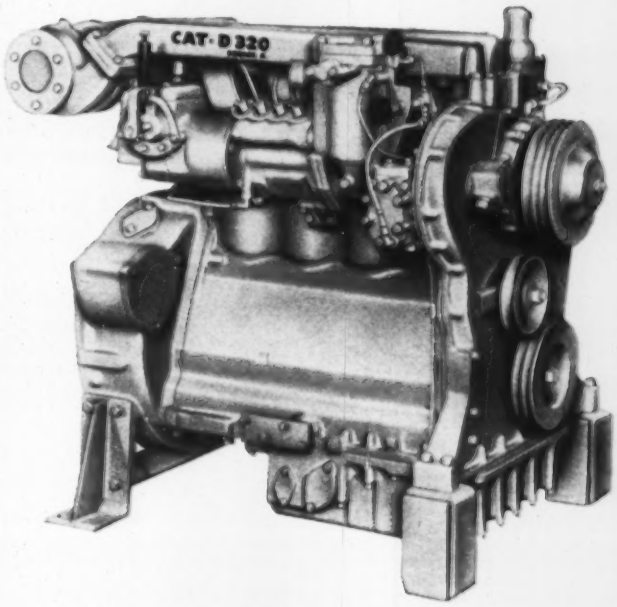
The D320 weighs in at only 1,300 pounds, is just 44" long, less than 28" wide and just 36" high. With these compact dimensions, you can easily install the D320 on present equipment. It may make it possible for you to raise equipment profitability with increased HP—even though space is limited and weight must be held down.

And of course you get traditional Caterpillar Engine dependability, operating economy, maintenance ease and long life. This is a *heavy-duty* engine in every way.

Your Caterpillar Dealer has a lot more information on the D320. It's profitable information to have if you're considering repowering, ordering new equipment, or if you're planning to add a 40 KW portable electric set. Ask your Dealer's Engine Specialist for complete specifications. Also, write us for more detailed facts, and let us know the kind and size equipment you have in mind.

OTHER RATINGS

The ratings on this page are published as a general guide for world-wide use in a broad range of applications. Other ratings, yielding gains in performance and economic return, are available to meet the needs of particular applications when detailed information is submitted.



CATERPILLAR

Engine Division, Caterpillar Tractor Co., Peoria, Ill., U.S.A.

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

Less weight per HP—more engine in less space. Lightness and compactness minimize enclosure and undercarriage problems.

Ratings shown are for D320 with Turbocharger and Aftercooler, which is added for maximum engine output.

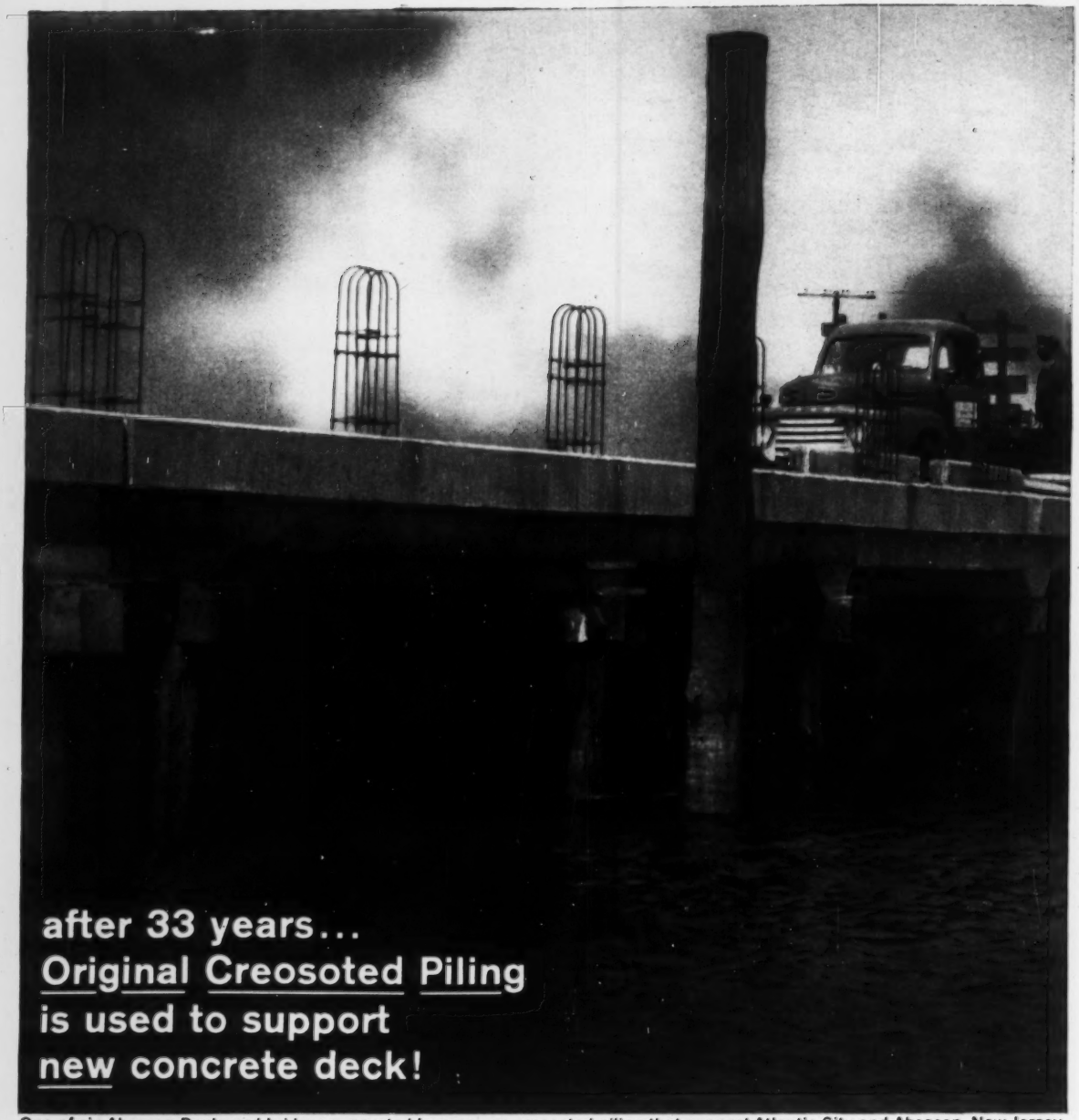
Every Cat Engine is built to rigid Caterpillar standards and carefully tested prior to delivery. Workmanship and power output capacity are certified.

D320 HORSEPOWER RATINGS*

Maximum Output Capacity	120 HP	2400 RPM
Intermittent	95 HP	2400 RPM
Continuous	75 HP	2000 RPM

*WITHOUT FAN

ENGINE POWER CERTIFICATION



One of six Absecon Boulevard bridges supported by pressure-creosoted piling that connect Atlantic City and Absecon, New Jersey.

Important time and money savings were made on this New Jersey project, when engineers discovered the long-run value of creosote protection. Originally, plans called for widening the bridge with a concrete deck over new concrete piling. Upon investigation, engineers were surprised at the remarkable condition of the piling—even after 33 years of service! In fact, the *old* piling was so good that it was used as the supporting structure of the *new* concrete deck—another on-the-job test of the long-run economical service provided by creosoted piling.

Whether it be bridges, culverts or other road structures, investigate pressure creosoted lumber because of its:

MULTIPLE TOXICITY: Marine borers, fungi and wood-destroying insects cannot develop immunity to the many toxic agents in creosote.

PENETRATION EASILY CHECKED: You can see the depth of penetration in any cross section.

THE TIME-PROVED PRESERVATIVE: Pressure-creosoted wood has remained sound without costly maintenance for generations.

PLASTICS AND COAL CHEMICALS DIVISION
40 Rector Street, New York 6, N. Y.

Allied Chemical

Homebuilders Face Money Crisis

- **Construction loans are becoming difficult to get in some parts of the country.**
- **Continued money shortages could slow starts in coming months and dent plans for 1960.**

Homebuilders in many areas of the country are caught in a kind of money-shortage trap they apparently didn't anticipate. They can't obtain short-term construction loans.

Having encountered a bitter experience in 1956 when mortgage money became a scarce and expensive item, builders last year and this year took pains to obtain a generous volume of mortgage commitments from lenders. They moved ahead with their 1959 construction plans confident they could obtain construction funds from local sources.

Now they find that it is short-term money that is not available, and if available, extremely expensive. This development runs up another danger-signal flag for the homebuilding industry and adds impressive weight to scattered lender warnings that builders should be cautious at this time (ENR July 16, p. 25).

Officials of the National Association of Home Builders, within the last week or two, started receiving reports of builders in trouble for lack of short-term cash.

They cite a Hampton, Va., builder who owns land, has plans and long-term financing commitments for 123 houses. But when he went to a local bank for construction money, he was turned down. The bank didn't have the required amount and a New York City commercial bank refused to participate in the loan.

Shortages of construction money in the Southwest are reported by Richard G. Hughes of Pampa, Tex., former president of NAHB, who also builds in Albuquerque, N. M. and Bartlesville, Okla.

Similar reports are coming in to NAHB from Tennessee and Alabama. One Mobile builder reports that the large-volume developers are absorbing most of the short-term construction cash available from local banks. The smaller builders are therefore being shut out.

And a spot check by ENR correspondents indicates that the squeeze is beginning to show up on the West Coast, Atlanta and Dallas. The shortage is not classified as critical now, but there is some worry about the next two and three months.

The Middle Atlantic and New England regions are not affected. Since these areas, for the most part, provide the capital for other parts of the country, funds are available for local builders. Usually, the lenders in those areas commit themselves to providing the construction money when they agree to provide the long-term financing for builders' buyers.

Outside of those money market centers, builders generally must depend on local sources for short-term money.

Despite the newly developed money problem, NAHB is still urging the enactment of a housing bill similar to the one that was vetoed. The association does not plan to bring in the short-term problem into housing bill discussions now because it could be a boat-rocker. Officials of the association want to avoid any implication that short-term money shortages could cut housing output even if Congress and the President approve legislation to ease home-buying terms.

Among the many provisions supported by NAHB are two that could actually intensify the housing credit problems:

- Extension of mortgage life to 35 years from the present 30 years on Federal Housing Administration and Veterans Administration home mortgages.
- Lower down payments for houses bought with FHA-insured mortgages.

Both measures could bring many more families into the housing market, thus greatly enlarging the demand for funds.

A longer mortgage life would lower the monthly carrying charge on housing and attract more marginal buyers. In addition, the payback to lenders, which is reinvested in new mortgages, would be greatly reduced. And lower down payments would increase the amount of funds needed to finance the same number of houses.

NAHB has no announced proposals aimed at trying to solve the short-term money problem. Officials however, recognize the possibility that some builders will be placed in a precarious financial position.

There are even some who feel that the short-term money shortage will be eased by a lengthy steel strike, because demand for consumer credit conceivably would be lessened. Also, funds borrowed to stockpile steel will be repaid as record steel inventories are reduced.

The association believes that builders caught in the squeeze will fight hard to obtain their construction money, even to the extent of offering to pay higher and higher interest rates to lenders.

There is a possibility that the shortage will reduce the number of houses started this year. No one, however, is estimating how sharply starts may drop during the rest of the year. Many feel the effects will be relatively slight.

The greatest concern is for next year. Planning for 1960 could be seriously set back if the money market doesn't ease.

Interest rates are continuing to climb and the amount of discount from the face of both FHA and VA loans continues to grow larger. Right now, conventional mortgages in New York City are drawing 6% interest plus a 1% service charge.

Dallas area builders report that construction funds are more difficult to obtain, but lenders and builders say it is far from a critical situation.

One lender suggested that builders will probably be tapping their suppliers for working capital and also individuals. "This may not be economical, but it certainly is one way to solve working capital problems."

Atlanta's homebuilders' association says construction money is short, and its effects will not be felt until the fall. Organization spokesmen and individual members say marginal operators may be hurt, but add there are always some failures, even under the best of circumstances.

Builders and lenders in northern California are generally confident that their building programs this year will not be damaged to any great extent, but "it will surely hurt us next year."

However, a San Francisco builder is not as sanguine as his colleagues. "High money costs could result in both large and small builders going under," he says.

(BCF continued p. 104)

July Contracts Hit New Record

Heavy construction contract awards in July set an all-time record for any July.

The total of $2.5 billion pushed cumulative volume for seven months to $12.83 billion, only 3% under the comparable period of record 1956. The July figure is also 6% above June on a weekly average basis.

Biggest boost came in state and municipal contracts. These awards spurted 12% ahead of June to $983 million. They were sparked by major bridge and dam projects. The two big ones were the $126-million Chesapeake Bay Bridge-Tunnel crossing and the $93.3-million Wanapum Dam. (Bond issues totaling $210 million to finance the Chesapeake Bay project are expected to be sold during the first week of September. Right-of-way and land for buildings are already bought.)

Despite the recovery last month in state and municipal awards, this sector still lags 5% behind one year ago and, for the first seven months, is 6% below the 1958 record. State and municipal contracts for this year's first seven months stand at $4.73 billion.

Numerous missile project awards in July pushed the federal unclassified sector 33% ahead of June. However, all federal work in July was only 1% ahead of June with volume of $335 million. Compared to July last year, federal contracts are 27% lower. July also marks the first time this year that the cumulative total of federal contracts is below the same months of 1958. For the first seven months, awards of $1.9 billion are 9% under 1958's same period.

There is a good chance that this gap may be narrowed in coming months, because only a moderate volume of new work will be necessary to top the low volumes registered in the last half of 1958.

Private contract awards in July were only 2% above June, but $1.2 billion of new business topped July 1958 by 42%. Private volume for the first seven months is at $6.19 billion, 24% above the same period of 1958.

The strong revival in private construction, particularly industrial contract awards, is offsetting this year's dip in public works.

In private work, only mass housing awards in July were below the previous month. This was the second consecutive month-to-month decline, and the July figure was only slightly above July 1958.

Industrial building in July rolled up contracts of $288 million. This is 11% above June's volume and more than double the volume of July last year.

Costs Continue Upward March

Wide-ranging wage and materials price increases continue to force ENR's 20-Cities Cost Indexes to new highs.

The Construction Cost Index for August stands at 811, up 4.2% since the start of this year, and 6.2% above one year ago. The Building Cost Index is up two points for the month to 554. That is 3.4% above January and 5.3% above one year ago. Both indexes are based on 1913 = 100.

Since 1949, both indexes have been moving up at an annual rate of about 5%. All signs point to a sharper rate of increase for 1959. The Construction Cost Index will probably top 1958 by more than 6% and the Building Cost Index will go higher by more than 5%.

Steel, lumber and cement prices edged upward 6.3% from a year ago and 3.6% since the start of this year.

Almost all the pressure on the materials component this year has come from boosts in the price of lumber. Steel prices since last August have held firm, and cement prices now are slightly below one year ago.

Prices of 2x4s now are $10 more than last year. Moreover, the price is firm because of demand built up by strikes and the strong housing market.

(*B&F continued p. 106*)

Engineering Construction Contracts for July

Five Weeks—Thousands of Dollars (000 Omitted)

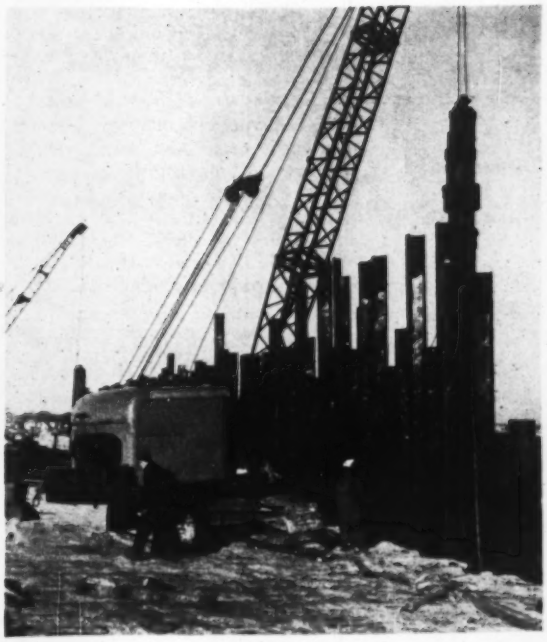
	July, 1959								Seven Months			
	New England	Middle Atlantic	South	Mid-West	Mississippi to Rockies	Far West	Total Continental U. S.	% Change July '58 to '59	Continental U. S. Cumulative 1959	Continental U. S. Cumulative 1958	% Change '58 to '59	Canada July 1959
Public Works, Total	**49,778**	**160,942**	**340,098**	**219,741**	**243,456**	**304,153**	**1,318,168**	**−21**	**6,634,396**	**7,115,919**	**− 7**	**97,950**
Waterworks	1,715	7,941	3,949	2,476	5,323	27,381	48,785	+16	268,355	199,162	+35	3,094
Sewerage	7,318	14,285	19,019	12,580	9,356	14,764	77,331	+32	404,041	363,445	+11	2,455
Bridges	367	2,658	142,444	9,675	9,149	5,776	170,069	+41	473,638	416,415	+14	19,417
Earthwork, waterways	530	2,282	5,985	6,102	26,256	103,515	144,670	+18	575,018	726,447	−21	81
Streets and roads	16,728	38,440	94,235	95,473	74,948	37,884	357,708	−11	1,932,188	1,944,403	− 1	39,991
Buildings: Residential	348	7,622	11,638	22,979	20,584	4,613	67,784	−75	461,080	861,706	−46	.....
Other	15,076	66,740	38,310	54,606	61,960	51,284	287,976	−16	1,647,164	1,643,150	0	13,295
Unclassified	7,696	20,974	24,518	15,841	35,880	58,936	163,845	−45	872,912	961,191	− 9	19,617
State & Municipal	41,509	124,405	297,551	154,734	132,115	232,466	982,780	− 5	4,732,848	5,030,009	− 6	66,879
Federal	8,269	36,537	42,547	65,007	111,341	71,687	335,388	−27	1,901,548	2,085,910	− 9	32,071
Private, Total	**87,527**	**263,018**	**198,708**	**201,333**	**232,270**	**181,268**	**1,164,124**	**+42**	**6,195,743**	**4,993,999**	**+24**	**74,592**
Bridges	.....	768	450	3,000	.....	.....	4,218	+5,678	7,668	8,509	−10	.....
Buildings: Industrial	8,843	46,157	111,751	63,981	23,663	34,062	288,457	+103	1,645,439	1,128,819	+46	44,976
Mass housing	59,252	151,725	25,818	73,177	112,091	83,298	505,361	+ 4	2,846,588	2,408,439	+18	12,110
Commercial	16,023	63,918	34,874	27,404	66,471	63,486	272,176	+67	1,389,605	1,173,916	+18	15,674
Unclassified	3,409	450	25,815	33,771	30,045	422	93,912	+214	306,443	274,316	+12	1,832
Total July, 1959—5 weeks	**137,305**	**423,960**	**538,806**	**421,074**	**475,726**	**485,421**	**2,482,292***	**0**	.....	.....	....	**172,542**
Total June, 1959—4 weeks	106,507	413,310	290,358	419,166	342,809	304,410	1,876,560*	....	.....	.....	....	126,181
Total July, 1958—5 weeks	206,901	460,431	330,889	393,886	511,683	577,964	2,481,754	....	.....	.....	....	128,567
Seven Months—1959	**773,773**	**2,820,784**	**2,273,132**	**2,178,236**	**2,601,621**	**2,182,593**	.....	....	**12,830,139***	.....	**+ 6**	**836,667**
Seven Months—1958	819,761	3,163,159	1,532,357	2,146,702	2,423,733	2,024,206	.....	....	.....	12,109,918	....	962,618
% Change '58 to '59	−6	−11	+48	+1	+7	+8	.....	....	.....	.....	....	−13

* Add Alaska: July '59: 10,711 June '59: 12,701 7 Mos. total: 70,662

ENGINEERING NEWS-RECORD *reports continental U. S. construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $53,000; *other public works,* $88,000; *industrial buildings,* $110,000; *other buildings,* $400,000.

The Wollaston Beach sea wall, a Metropolitan District Commission project, was designed by Hayden, Harding, & Buchanan of Boston. Steelwork was handled by J. F. White Contracting Co., sub-contractor under Salah and Pecci Construction Co., Boston.

Mile-long sea wall of steel piling protects Massachusetts beach



A new mile-long sea wall at Wollaston Beach, bordering the bay at Quincy, Mass., protects the shore from high water, and also provides a wide bathing beach.

Some 2,900 tons of Bethlehem steel sheet piling form the wall's core. Strengthened at 15-ft intervals by structural steel buttresses, the piling was driven to resistance on bedrock. Pile lengths varied from 19 to 43 ft. The wall was then capped by nine ft. of concrete, five ft of which are below sand level to protect against beach erosion. The sea wall is approximately three ft above the roadway of Morrissey Boulevard which skirts the bay, but is four ft higher than the sand level of the beach.

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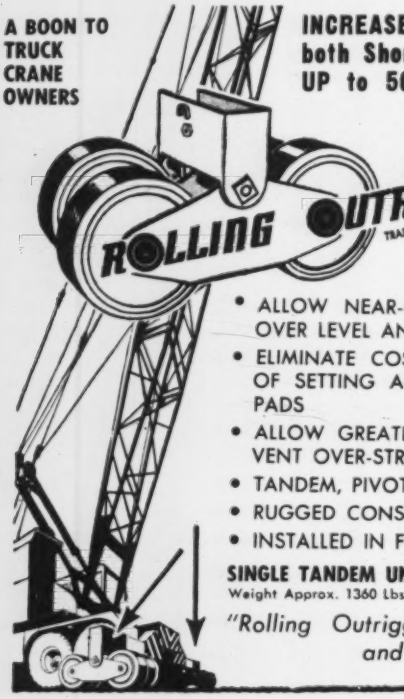

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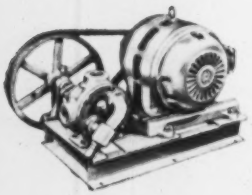

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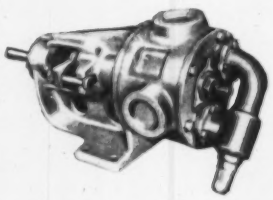

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Fallout Protection

County officials consider 'sample' shelter program

The nation's county government officials are pushing for an ultimate multi-billion-dollar nuclear fallout shelter program. As a start, they are urging a federal appropriation of $2.5 million to pay for construction of several types of "sample" shelters throughout the country.

The plan was introduced in Detroit last week at the annual conference of the National Association of County Officials.

Among proposals approved by the 2,000 members attending was one calling for a separate Department of Civil Defense at Cabinet level.

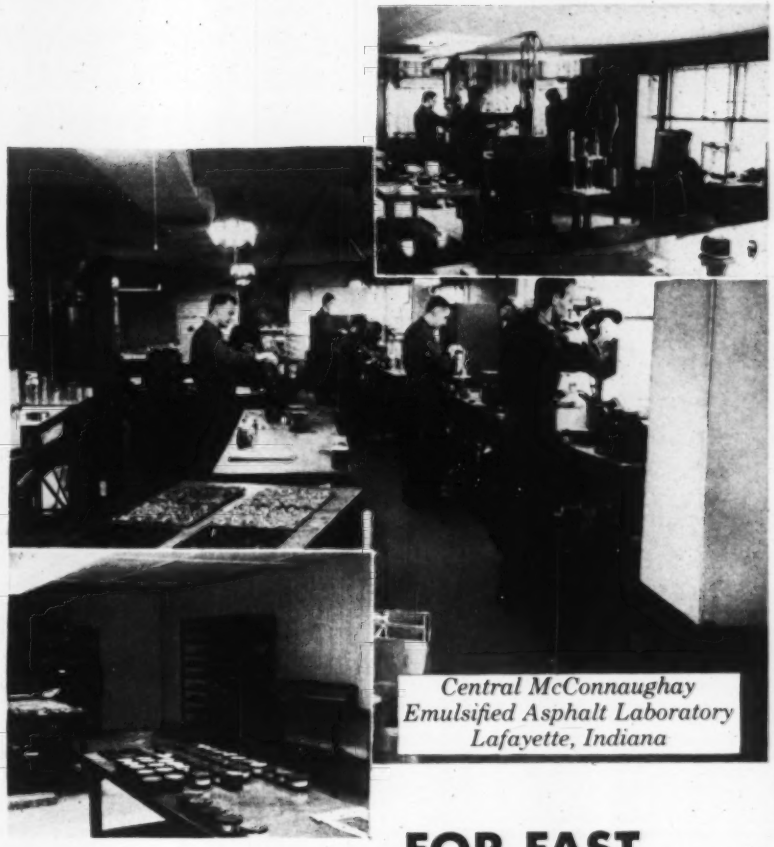
The suggestions were unveiled by Elliott R. Jackson, director of the Atlanta Metropolitan Area of Civil Defense.

The experimental shelter program is admittedly a tentative one, as no design studies have been made, Mr. Jackson says. However, it is drawing some attention, probably because it comes soon after disclosure of a New York State program backed by Gov. Nelson A. Rockefeller. That plan calls for construction of shelters in every building and house in the state (ENR July 16, p. 27). Construction would be mandatory. A measure may be presented for consideration by the 1960 New York legislature.

The NACO proposals include:

- Construction of two home-type shelters in each state, which would be displayed at home shows.
- A 100-car underground parking garage in a major city that could double as nuclear shelter for 2,000 persons. Mr. Jackson estimates such a facility would cost about $2,500 per person.
- A block-long understreet fallout shelter for 1,200 persons, also to be constructed in a major city. Total cost is placed at $300,000.
- Construction of shelters at each of two hospitals somewhere in the nation at a total cost of $500,000.
- Construction of a shelter in a new school and shelters at two existing schools.

Mr. Jackson has no direct support from the Office of Civil and Defense Mobilization, nor does he have an idea of over-all cost. He cites Congressional hearings that showed a public shelter program would cost $20 billion, and could go to $50 billion if family shelter units were added.



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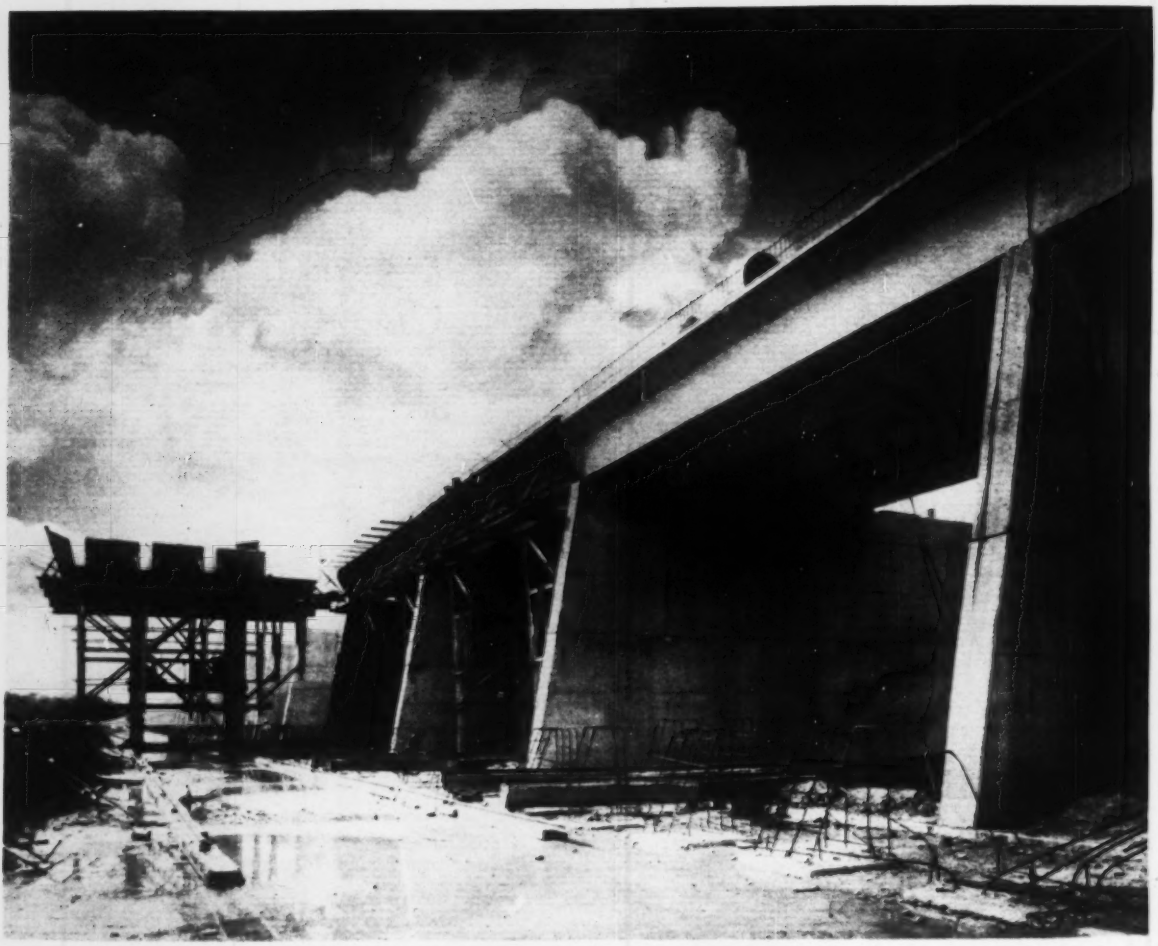

Ten-ton Blaw-Knox bridge deck form moves on traveler to new position. Steel chains for fir gates are cast integrally with girders. Old River Control Project is a $47 million job designed to preserve Mississippi's flow into its lower basin.

Blaw-Knox steel forms cut costs, simplify concreting operations on Old River Control Project

Blaw-Knox multi-purpose bridge deck forms used in the construction of the Overbank Control Structure on the Old River Control Project near Simmesport, Louisiana amortized their cost for F&C Engineering Company, prime contractors on the huge project, less than three-quarters of the way through the job.

A three man crew strips and moves the form into position in less than a day. Six additional men align the form and position girder and curb forms which are fabricated on the ground and raised by crane. To date, F&C has averaged one pour every third day.

With this kind of performance, it is easy to see why F&C expects to complete concreting ahead of schedule, at the same time cut job costs. The number of skilled carpenters is greatly reduced, along with material requirements. In your next concrete project, whatever its nature, call in the Blaw-Knox Steel Forms Consultation Service to help in planning for more efficient forming, lower costs, better job profits. There's no obligation, of course.

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Contractors Oppose Labor Bill

Employers in the construction industry are pitting their legislative strength against that of the building trades unions on the floor of the House of Representatives.

Employers are against pre-hire labor contracts for construction workers and legalization of secondary boycotts at construction sites. Both are raised by the Elliott and Griffin labor-reform bills scheduled for debate in the House this week. (The Elliott bill was approved by the House Education and Labor Committee by a 16 to 14 vote. The Griffin bill was introduced as a stronger substitute with the tacit backing of the Administration.)

The Elliott bill, like the Senate-approved Kennedy bill, authorizes the use of pre-hire labor contracts in the construction industry. It also contains a provision introduced by Rep. James Roosevelt (D., Calif.) permitting unions to engage in secondary boycotts on construction jobs.

The Griffin bill does not use the pre-hire approach to union representation. Instead it allows unions to be certified without a prior election if a history of collective bargaining exists. It tightens rather than relaxes the present bans on secondary boycotts.

The Elliott provisions have been sought by the unions for many years. The unions contend they are necessary and justified because of the unique conditions under which the construction industry operates.

Last week, the National Association of Home Builders rose to the challenge. It asked members of all its local associations to forward their opposition to both proposals to Congress.

NAHB contends the pre-hire proposal amounts to a return to the closed shop. It views the boycott proposal as the forerunner of "a period of unstable labor relations in a continuous series of boycotts and strikes."

It feels that pre-hire contracts would put job opportunities beyond the reach of all nonunion workers, violate the freedom of choice workers are supposed to have in union or nonunion affiliation and reduce the effectiveness of right-to-work laws.

If boycotts are authorized at construction sites, NAHB says, any one trade could shut down an entire project, however insignificant the dispute; the use of prefabricated materials would become hazardous and the doors would be opened to intensive organizational campaigns that disregard the desires of individual workers.

Similar protests have been registered by the Carolinas Branch of the Associated General Contractors, which has urged the industry to take steps to defeat the Elliott bill.

Robert Patton, managing director of the local AGC, says the bill would "clinch the iron-fist grip of union bosses bent on organizing the South."

He contends the boycott proposal would give unions the power to choke off supplies and would render highway and building contractors defenseless against organizing activities. Two results, according to Mr. Patton, would inevitably follow:

- Contractors would have to sign labor agreements with the unions or go out of business.
- Construction costs would rise.

Text of Controversial Provisions

1. The Elliott Bill

• **Pre-hire:** "It shall not be an unfair labor practice . . . for an employer engaged primarily in the building and construction industry to make an agreement covering employees engaged (or who, upon their employment, will be engaged) in the building and construction industry with a labor organization of which building and construction employees are members . . . because (1) the majority status of such labor organization has not been established under the provisions of Section 9 of this Act prior to the making of such agreement, or (2) such agreement requires as a condition of employment membership in such labor organization after the seventh day following the beginning of such employment or the effective date of the agreement, whichever is later, or (3) such agreement requires the employer to notify such labor organization of opportunities for employment with such employer, or gives such labor organization an opportunity to refer qualified applicants for such employment, or (4) such agreement specifies minimum training or experience qualifications for employment or provides for priority in opportunities for employment based upon length of service with such employer, in the industry or in the particular geographical area . . ."

• **Boycotts:** The bill prohibits unions from inducing employees of any employer to strike or to refuse to handle goods of another employer if an object of the strike or refusal is to force another employer "to recognize or bargain with a labor organization" or "to cease doing business with any other person" unless "such secondary employer is engaged as a joint venturer, prime contractor, subcontractor, or co-contractor together with the primary employer involved in a labor dispute, in a construction project or similar undertaking at the site of such concerted activity."

2. The Griffin Bill

• **Certification:** ". . . the Board may, without prior thereto having conducted an election by secret ballot, certify a labor organization . . . as the exclusive representative of all the employees of an employer . . . in such unit as the Board may find is normally represented by the labor organization in the building and construction industry for the purposes of collective bargaining. . . . Provided . . . the preceding proviso shall not apply where there is no history of a collective bargaining relationship between the petitioning employer and labor organization prior to the current agreement . . ."

• **Boycotts:** The bill prohibits unions from engaging in boycotts aimed at "forcing or requiring any other employer to recognize or bargain with a labor organization as the representative of his employees unless such labor organization has been certified as the representative of such employees under the provisions of Section 9."

Disunity in Construction Hurts Cos

- **There's a big gap in both contractor and union ranks between local and national efforts to reduce unnecessary labor costs.**
- **It shows up in local agreements. One example is a San Francisco plumber's contract that's hard to reconcile with Ten Commandments.**

Two recent developments indicate that the construction industry still has a long way to go before it achieves enough unity of thought or action to make any significant headway in its efforts to reduce unnecessary labor costs. Local implementation of national policies is still the big problem.

Last month, for example, Irvin L. Rechkemmer, president of the National Association of Plumbing Contractors, told delegates at a Washington convention that he is quite concerned about local labor agreements that yield to "excessive and outrageous demands" on the part of labor.

"From the standpoint of a small contractor," he said, "I think we are pricing ourselves out of the residential and service market and, in a lot of cases, out of business. We have allowed ourselves to be lulled into a false sense of security by agreeing to those demands! It is time we faced the facts. We cannot ignore sound economics or good sense so far as labor relations are concerned." And he said one of the problems now before the Construction Industry Joint Conference is that of getting back "contract work we lost through high labor costs to in-plant unions."

Three weeks before Mr. Rechkemmer expressed those views, however, plumbers and steamfitters in San Francisco won an immediate pay boost of 40 cents an hour and a number of contract clauses that are not easily reconciled with either the letter or the spirit of the construction industry's 10-point code for the reduction of unnecessary labor costs.

(The code, which is known as the "Ten Commandments," seeks to improve the value of the construction dollar by eliminating uneconomical labor practices. It condemns such things as spread work tactics, standby crews and featherbedding practices, reaffirms the right of contractors to select their foremen and calls for the performance of work by stewards. The code has been endorsed by various contractor groups and all the AFL-CIO building trades unions at the national level. It is a statement of policy that must be carried out at the local level by unions and contractors in order to be effective.)

The local labor agreement in San Francisco pushed the wage scale of journeymen plumbers and steamfitters to $4.68 an hour on July 1. It calls for a $1.05 pay increase over a three-year term. The first installment was 40 cents. The next two installments—due in 1960 and 1961—are 40 and 25 cents each.

The Associated Plumbing Contractors of San Francisco agreed to the contract after Local 38 threatened to strike its members. APC itself bitterly criticized the settlement, which had come out of negotiations between plumbers and the Mechanical Contractors Association of San Francisco and the APC of Marin, Sonoma and Mendocino Counties.

Included among the specific provisions of the contract are these:

- A sharp distinction is drawn be-

Industry Wage Rate Hits $3.50

The estimated average wage rate of all union building trades workers rose to $3.50 an hour by July 1, 1959, according to the U. S. Labor Department's Bureau of Labor Statistics. (This adds up to $129.15 a week in terms of the construction industry's average workweek—36.9 hours over the last four years—or $140 on the basis of a 40-hour week.)

The estimate does not include fringe benefits and is based on an average increase of 3% in hourly wage scales during the three months ending July 1. The increase is greater than that for the corresponding quarter last year, but less than the 3.4% increase that occurred in the second quarter of 1957.

This put the level of rates on July 1 70% above the 1947-49 average and 4.6% higher than in July 1958. The increase in average hourly rates since July 1, 1958, amounted to 15.3 cents for all trades combined. It varied from 11 to 17.4 cents for the seven major building trades surveyed in 100 cities.

Two of every three construction workers included in the bureau's quarterly survey received a pay increase. Raises of 10 cents were reported in a third of the adjustments and of 15 cents in a fifth of them. Increases of 20 cents or more occurred in a ninth of the scale revisions and of 7½ cents or less in a similar proportion.

For the individual trades, average wage gains for the quarter varied from 4.2 cents for painters to 11.9 cents for carpenters. The estimated quarterly annual basic wage increase (in cents per hour) by trades and the estimated average pay scales prevailing on July 1 appear in the table below. (Fringe benefits are not included.)

Recent Gains in Construction Wages

Trade	Second Quarter 1958 Increase	Increase Since July 1, 1958	Wage Scale as of July 1, 1959
Bricklayers	9.7¢	17.4¢	$4.04
Carpenters	11.9	16.6	3.63
Electricians	7.8	11.9	3.80
Painters	4.2	11.0	3.38
Plasterers	8.5	12.2	3.88
Plumbers	11.4	18.6	3.88
Bldg. Laborers	10.1	15.1	2.62
All Trades Combined	9.9¢	15.3¢	$3.50

Cutting

tween plumbers and steamfitters. There can be no transfer of men from one type of job to the other once they are dispatched. Plumbing foremen may supervise only plumbers, and steamfitting foremen only steamfitters.

• Whenever more than five men are on a job, the sixth man shall be over the age of 55, if such competent men are available. On temporary heat work, only men over 50 are to be employed.

• There must be a sub-foreman on any job exceeding eight hours, where there are two or more plumbers working. Exceptions are minor repairs, alteration work and family dwellings with 12 or fewer fixtures. If there are 10 or more plumbers on a job, there must be a foreman and a sub-foreman. An additional sub-foreman is required for every additional five workers. Where there are five sub-foremen, there must be a general foreman.

• No sub-foreman, foreman or general foreman shall work with the tools of the trade. No employer shall work with the tools of the trade unless he registers with the union as a working employer.

• Premium pay for sub-foremen with five or less workers is 50 cents; it is 75 cents when he has more than five workers. Foremen receive $1.00 in premium pay; general foremen, $1.25.

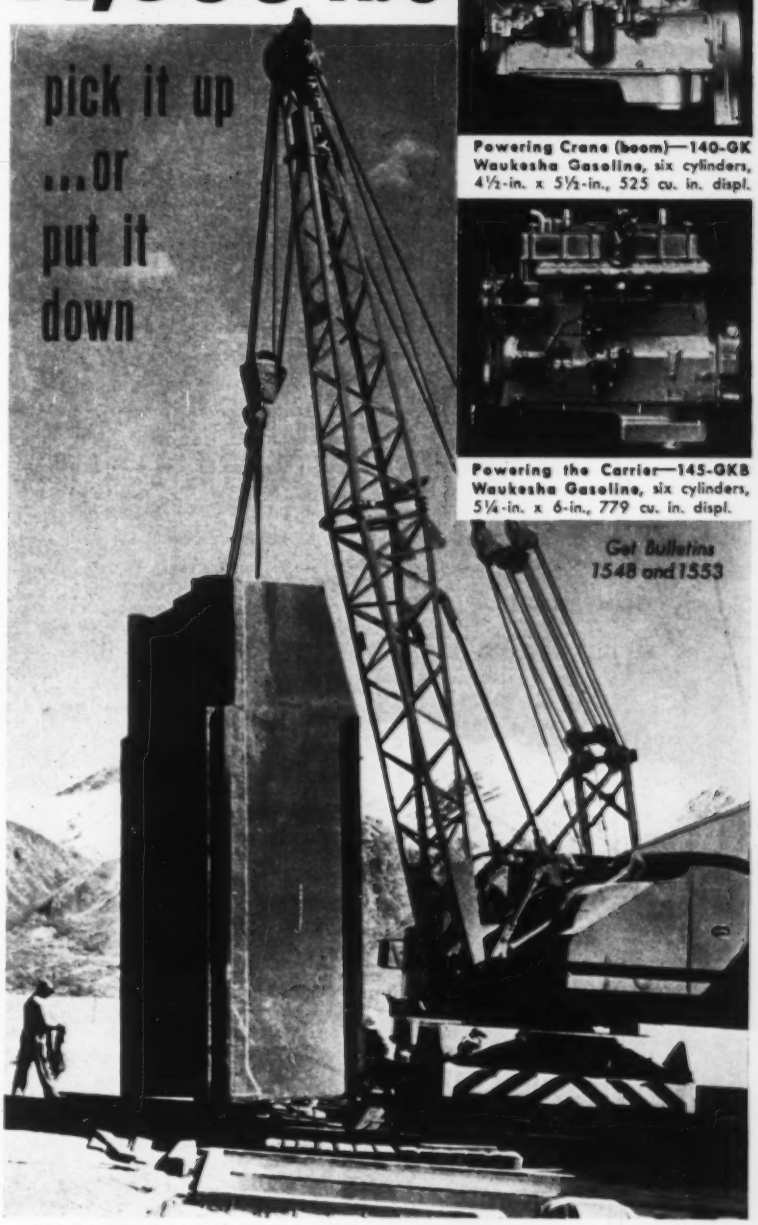
• If a worker is dispatched but no work is available, he receives four hours pay. If he works more than four hours, he receives eight hours pay. In case of cancellation because of weather or strikes, he receives a minimum of two hours pay.

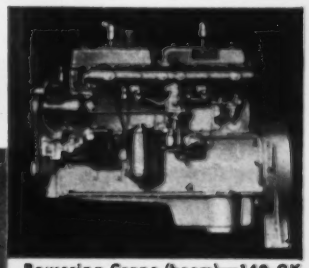
• One "safety" provision provides that no employee shall install pipe 3 in. or more in diameter and 10 ft long or longer without the assistance of a journeyman or apprentice.

• Another "safety" provision is that at least two men shall be employed on any new work or alteration work lasting longer than eight hours. Defined as one-man jobs and excepted are installation of bathroom accessories, fixture trim, fixtures not of excessive weight and cast iron pipe up to 4 in. in diameter where there are two or more men working in the immediate area.

In keeping with the Ten Commandments, however, the contract does provide that "no rules, customs or practices shall be permitted that limit production or increase the time required to do any work." And employers are guaranteed a free hand in the use of machinery and labor-saving devices.

77,300 lbs





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Powering the Carrier—145-GKB Waukesha Gasoline, six cylinders, 5¼-in. x 6-in., 779 cu. in. displ.

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Bids: August 27, 1959.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Canal Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A. M., eastern standard time, on the 27th day of August 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

OFFICIAL PROPOSALS

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, C. L. Nickerson, District Engineer, 353 Broadway, Albany 1, New York						
Greene (Rtes. 23, 145 & 32)	FARC 59-128	Cairo-Windham, Pt. 1, S.H. 5233; Cooksburg-Cairo, Pt. 3, S.H. 8413; Cairo-Greenville, S.H. 8309; Cairo Hamlet, S.H. 954; South Cairo-Cairo, S.H. 887 and Saxton-Cairo, S.H. 9301 Proj. F-1159(1), F-567(4)	3.42 (0.40 Acc.)	9" Cem. Conc. Pavt. 2 @ 24' Var. Wide = 2.46 Mi. Asph. Conc. Pavt. = 1.36 Mi.; Twin Bridge Comp. I-beams Each 2 Sp. 167.5'	$83,000 Plans $5	$1,505,000
Saratoga (Int. Tour Rte. 87)	FISH 59-18	Interstate Route 502 (Clifton Park to Malta) including Access Work on S H. 5519 and Various Town and County Roads Proj. I-IG-87-3(20)169	7.47 (4.58 Acc.)	9" Cem. Conc. Pavt. 2 @ 36' Var. Wide = 7.40 Mi. Misc. Work = 0.07 Mi. (Access = 2.03 Mi. Cem. Conc. Pavt., 1.89 Mi., Asph. Conc. Pavt., 0.44 Mi.; Bit. Surf. Treat. Pavt. and 0.22 Misc. Work); 6 Hy. Seps. Comp. Beams; 6 Sp. 343.3', 3 Sp. 127.8', 3 Sp. 136.3' 3 Sp. 126.1' and 5 Sp. 259.3'; 3 RR Seps. Comp. Beam; 3 Sp. 148.5'; 3 Sp. 148.5' and 3 Sp. 141'	$478,000 Plans $10	8,725,000
DISTRICT No. 2, L. Ketchum, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Herkimer (Rte. 58)	R.C. 59-135	Utica-Frankfort, Pts. 1, 2 and 3, S.H. 5209-S.H. 359 and S.H. 14; Illion-Frankfort, S.H. 5219	6.96	Asph. Conc. Type 1A Pavement	$12,000 Plans $5	211,000
DISTRICT No. 3, E. E. Towlson, Acting District Engineer, 333 E. Washington Street, Syracuse, New York						
Cayuga & Onondaga (Rte. 31)	R.C. 59-118	Port Byron-Weedsport, S.H. 5609; Auburn-Weedsport, S.H. 1317; Weedsport-Jordan, Pts. 1 & 2; S.H. 5654, 5639	8.87	Asph. Conc. Pavt.	$16,000 Plans $5	276,000
Cayuga, Seneca & Thompson	R.C. 59-119	S.H. 1923, 434, 1878, 926, 8087, 1188, 8407, 1676 (Rte. 38), S.H. 687, 1175, 685 (Rte. 104A), S.H. 8247, 852 (Rte. 104), S.H. 1717, 1750 (Rte. 176), S.H. 614 (Rte. 38A); S.H. 1173 (Rte. 326), S.H. 5244 (Rte. 34B), S.H. 5012 (Rte. 34), S.H. 50-13 and 8519 (Rte. 90), S.H. 8363, 1921, 8386 (Rte. 89), S.H. 5282, 326, (Rte. 96-414), S.H. 616 (Rte. 96), S.H. 1189 (Rte. 327), S.H. 681, 682, 5214 (Rte. 13-392), S H. 1433 (Rte. 222), S.H. 72, 338, 1431, 1004 (Rte. 79-330) and S.H. 5575 (Rte. 227)	....	Roadside Development	$800 No Plans Proposal $2	14,000
Onondaga (Rte. 31)	R.C. 59-120	Jordan-Baldwinsville, Pt. 2, S.H. 8107	3.86	Asph. Conc. Type 1A Pavt.	$7,000 Plans $5	126,000
Onondaga	R.C. 59-121	S.H. 9045, 9047 (Rte. 173-20N), S.H. 9354 (Rte. 208Y) and S.H. 5587 (Rte. 5)	....	Roadside Development	$200 No Plans Proposal $2	4,000
Oswego (Rte. 57)	R.C. 59-122	Fulton-Three Rivers, Pt. 1 and Pt. 2, S.H. 5251 and S.H. 5276	4.27	Asph. Conc. Pavt.	$8,000 Plans $5	140,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Genesee (Rtes. 5 & 33)	FAC 59-15 FARC 59-134	Batavia City: Main Street Arterial Highway (Summit St. to East City Line), Batavi-Stafford, Rt. 3, S.H. 5145A Proj. U-706(4), F-335(4)	1.53	Asph. Conc. Pavt	$85,000 Plans $5	1,535,000
Monroe	M 59-8	Br. E129 Church St., Town of Perinton; Br. E-144, Clinton Ave., Town of Brighton; Br. E-173 Gillette Rd., Town of Ogden and Br. E-175 Martha St., Town of Ogden	....	Clean & Paint. 4 Bridges	$800 Plans $10	15,000
Orleans	M 59-9	BR E-129 Brown St., Albion and Br. E-202 Gaines Basin Road, Gaines	....	Clean & Paint. 2 Bridges	$500 Plans $10	9,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Cattaraugus, Erie, & Niagara (Rtes. 354, 78, 18, 17, 16)	R.C. 59-136	Br. No. 1, S.H. 371; Br. No. 3, S.H. 924; Br. No. 4, S.H. 1754; Br. No. 1, S.H. 1854 and Br. No. 2, S.H. 8086	....	Clean & Paint. 5 Bridges	$2,400 No Plans Proposal $2	44,000
Cattaraugus Chautauqua Erie & Niagara	R.C. 59-123	S.H. 9072, 9031, 1381, 8252, 9038, 9300, 1024 (Rte. 39), S.H. 1469, 9292 (Rte. 428), S.H. 1471; 1026 (Rte. 60), S.H. 5320, 5434, 5596, 5263A, 5217A, 5217, 5053, 5151 (Rte. 17), S.H. 1617, 1169, 9028, 1380A (Rte. 17J), S.H. 8115, 8212, 1742, 8275, 8255, 1709, 1305 (Rte. 98), S.H. 8149, 5259, 9212, 8416 (Rte. 242), S.H. 1509 (Rte. 219), S.H. 48-15 (Rte. 353), S.H. 5220 (Rte. 62), and S.H. 263, 264, 5550 (Rte. 16-78)	....	Roadside Development	$1,000 No Plans Proposal $2	19,000
Chautauqua	C 59-13	City of Jamestown: North-South Arterial Highway (Washington St. Bridge)	0.04	Demolition of Buildings	$300 Plans $5	6,000
Niagara	M 59-7	Br. E-219 Wruck Rd. Town of Royalton; Br. E-224 Harrington Rd. Town of Lockport, Br. E-232 Pine St., City of Lockport and Guard Gate No. 17 Erie Canal Town of Royalton	....	Clean. & Paint. 3 Bridges and 1 Canal Guard Gate	$1,400 No Plans for Proposal $2	26,500
DISTRICT No. 6, J. H. Thomas, District Engineer, State Office Bldg., 30 West Main Street, Hornell New York						
Allegany (Rte. 17 & 21)	FARC 59-111	Andover Village, S.H. 5419; Andover-Alfred Station-Almond, S.H. 5502 Proj. F-589(7)	1.49	Asph. Conc. Pavt. = 1.38 Miles; Misc. Work = 0.11 Mi.; Prestressed Conc. Br. 72' Span Twin Reinf. Conc. Box Br. 53.3' Span	$40,000 Plans $5	736,000
Steuben (Rte. 70)	R.C. 59-124	Big Creek, Pt. 3, S.H. 1000	1.59	Asph. Conc. Pavt.	$5,000 $35,000	88,000
Steuben (Rte 53)	R.C. 59-125	Kanona-Prattsburg, Pt. 1A, Pt. 1B and Pt. 2, S.H. 1656, 1624 and S H. 1474; Prattsburg-Italy Hill, Pt. 1, S.H.1594	9.39	Asph. Conc. Pavt.	Plans $5	630,000
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee Street, Watertown, New York						
Jefferson (Int. Tour. Rte. 81)	FISH 59-19	Interstate Route 505 Section 7AB-1 (Jefferson County Line to S.H. 184)	4.60 (5.81 Acc.)	Asph. Conc. Type 1A Pavt. (M.L.) = 4.60 Mi. (Access = 5.37 Mi., Asph. Conc. Type 1A Pavt. 0.44 Mi. Graded Gravel B.D.S.T. Pavt.), 3 Hy. Seps Comp. W-F Beams, 6 Sp. 441', 4 Sp. 326' and 5 Sp. 297.5' 2 Brs. Reinf. Conc. Boxes 20' and 21'	$260,000 Plans $10	4,383,000
DISTRICT No. 8, K. G. Rauer, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Putnam	TSP RC 59-2	Taconic State Parkway Sects. 2 and 3	6.34	Asphalt Concrete Pavt.	$6,000 Plans $5	110,000
Westchester	R.C. 59-127	S.H. 9206, 84-56, 8457, 5361, 5364A, 5182, 9266, 9364, (Rte. 9), S.H. 20, 35, 5003, 5146, 5298A, 9273, 5464 (Rte. 22), S.H. 1015, 5226, 9247 (Rte. 120), S.H. 1456 (Rte. 119-120), S.H. 9256, 901 Pts. 1 and 2 (Rte. 120A), S.H. 148 (Rte. 118), S.H. 780 (Rte. 127), S.H. 5719 (Rte. 1), S.H. 331, 332 (Rte. 35-202), S.H. 9246 (Rte. 100A), S.H. 1167, 1053, 34, 52 (Rte. 9A), S H. 519 (Rte 117), S H. 1570 (Rte. 100) and S H. 645, 10, 134 (Rte 125), S H. 9254, 1308 (Rte 141)	....	Roadside Development	$1,000 Plans $5	18,000
DISTRICT No. 9, J. C. Frederick, District Engineer, 71 Frederick Street, Binghamton, New York						
Chenango (Rte 23)	FARC 59-106 R C 59-107	Norwich-South New Berlin Pt 1, S H. 596; Norwich-South New Berlin Pt 2, and South New Berlin-New Berlin, Pt 1, S H. 1394 Proj. F-620(10)	4.16	Asph. Conc. Pavt. = 4.10 Mi.; Misc. Work = 0.06 Mi. Rehabilitation of Exist I-Beam Bridge	$42,000 Plans $5	765,000
DISTRICT No. 10, M. E. Goul, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Nassau (Rte. 27)	T.C. 59-4	Conduit Boulevard, Pt. 3, S.H. 1699A and S.H. 1699C Conduit Boulevard, Pt. 4, S.H. 1699B, Conduit Boulevard, Pt. 3A, S.H. 1953	10.98	Furnish and Install Progressive Traffic Signal System	$13,000	236,000

(Continued on the following page)

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

(Continued from preceding page)

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

CONTRACTORS
WATCH
THIS SECTION

for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

Bids: August 13, 1959

Test Borings
Contract 469

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Daylight Saving Time (10:00 A.M., Eastern Standard Time) on Thursday, August 13, 1959, for Contract 469, for making vertical test borings in Upper New York Bay and on land in the Boroughs of Brooklyn and Richmond, City of New York, to determine the elevations, nature, and conditions of the bed rock, and the depths and character of the overlying materials, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of forty thousand dollars ($40,000.00), for the proper execution of the contract.

Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawing, requirements as to surety, etc., can be obtained in the Secretary's office, Room 1312, at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of Contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. For further particulars apply at the office of the Chief Engineer at the above address.

ARTHUR C. FORD, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners; Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: September 1, 1959.

General Construction of
CHA Project Ill. 2-36

The Chicago Housing Authority invites properly qualified bidders to submit proposals for all labor and material required to complete the General Construction of CHA Project Ill. 2-36. The work includes four 14-story apartment buildings, a garage building, and related utility and site work, all generally in the vicinity of East 38th St., and South Langley Ave.

Bids will be received until 2 p.m., local time, on September 1, 1959, by mail or by hand in Room 1500 of the Chicago Housing Authority, 608 S. Dearborn St., Chicago 5, Ill., immediately after which time and at such place all bids will be publicly opened and read aloud.

Contract documents including plans and specifications may be obtained on or after August 3, 1959, by depositing $75.00 in the form of a cashier's check, certified check, or telegraphic or postal money order with L. R. Solomon & Assoc., Architect or John D. Gordwell, Architect, 61 West Superior St., Chicago 10, Ill.

Bids: September 1, 1959.

Force Mains, Intercepting Sewers, and Pumping Stations
Steelton, Dauphin County, Penna.

Sealed proposals for separate Contracts stated below will be received by Michael Zerance, Secretary, Steelton Borough Authority, at the Municipal Building of the Borough of Steelton, until 1:00 P.M., Eastern Daylight Saving Time, September 1, 1959, and will there be publicly opened and read shortly thereafter. Proposals will be for furnishing all necessary labor, materials, and equipment, and performing all work of the separate Contracts. Each proposal shall be accompanied by a certified check or bid bond in an amount not less than ten (10) per cent of the bid total, all in accordance with the Contract Documents.

Copies of the Contract Documents, including Drawings and Specifications may be seen at the office of Gannett Fleming Corddry and Carpenter, Inc., Engineers, 600 North Second Street, Harrisburg, Pa., from whom they may be obtained upon deposit of the following indicated amounts per set. Not more than two (2) sets of any particular Contract will be permitted a prospective bidder. Checks shall be made payable to Gannett Fleming Corddry and Carpenter, Inc.

Contract One
CONSTRUCTION OF FORCE MAINS INTERCEPTING SEWERS, AND APPURTENANCES $40.00

Contract Two
GENERAL CONSTRUCTION OF SEWAGE PUMPING STATIONS... $50.00

Contract Three
PLUMBING WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE PUMPING STATIONS... $30.00

Contract Four
HEATING WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE PUMPING STATIONS... $30.00

Contract Five
ELECTRICAL WORK IN CONNECTION WITH CONSTRUCTION OF SEWAGE PUMPING STATIONS... $30.00

Full refund will be made only to actual bidders on the Contracts stated above, for return of one (1) set, no more, of a particular Contract in good condition within fifteen (15) calendar days after bid opening; refund for return of all other sets within the same period will be fifty (50) per cent of deposit. No refund will be made for Contract Documents returned later than fifteen (15) calendar days after bid opening.

Gannett Fleming Corddry
and Carpenter, Inc.
Engineers

STEELTON BOROUGH AUTHORITY
Steelton, Dauphin County
Pennsylvania

Bids: August 25, 1959.

Contract NA-140.017

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
ALTERATIONS TO PARKING LOT NO. 1

Sealed proposals for performing alterations to Parking Lot No. 1 at Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, August 25, 1959 at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman
New York, August 6, 1959

OFFICIAL PROPOSALS

Bids: August 27, 1959.

Reconstruction Work

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Canal Law and Highway Law, sealed proposals will be received, until 10:30 A.M., D.S.T. on August 27, 1959 by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract M 59-4 for Reconstruction of a Portion of the Apron and the Northeast Wing Wall of Pier No. 5 at Movable Dam No. 4, Lock 8-E, Town of Glenville, Schenectady County, New York
Engineer's Estimate for M 59-4 is $325,000.00

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor
The Gov. Alfred E. Smith State Office Bldg., Albany, New York.
(b) Department of Public Works, 270 Broadway, New York City, New York.
(c) In addition to the above mentioned offices, plans, maps and specifications for Contract M 59-4 may be examined and obtained at the office of Mr. G. L. Nickerson, District Engineer, 353 Broadway, Albany 1, New York.

The deposit for Plans and Proposal Forms for Contract M 59-4 is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Proposals for M 59-4 must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" in the amount of $17,000. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Canal Law and Highway Law as set forth in "Instructions to Bidders" in the contract specifications.

The right is reserved to reject any and all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF PUBLIC WORKS

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5221) will be received at McCook, Nebraska, until 10 a.m., Central Standard Time, September 3, 1959, for furnishing labor and materials for earthwork and structures for Culbertson Extension Canal, Station 1126+00 to Station 1719+00, and laterals, wasteways, and drains, Frenchman-Cambridge Division, Nebraska, Missouri River Basin Project. Location near Culbertson, Nebraska. Principal items are 887,000 cu. yds. excavation; 10,300 cu. yds. concrete; 12,200 lin. ft. concrete pipe; 2,000 lin. ft. corrugated-metal pipe; and other work. Completion time 640 days. For particulars, address Bureau of Reclamation, P. O. Box 737, McCook, Nebraska; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-5223) will be received at Denver, Colorado, until 2 p.m., Mountain Standard Time, September 22, 1959, for furnishing one (1) 20,000-kva, 230- to 69-kv, 3-phase, class OA, outdoor power transformer, with tank-mounted lightning arresters for Fort Thompson Substation, Missouri River Basin Project, South Dakota. Delivery is desired within 375 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5226) will be received at Yuma, Arizona, until 10 a.m., Pacific Standard Time, September 10, 1959, for furnishing labor and materials for earthwork and structures regulating by-pass lines for Pumping Plants No. 1, 2 and 3, Gila Project, Arizona. Location near Yuma, Arizona in Yuma County. Principal items are excavation, 9,000 cu. yds.; concrete pressure pipe, 1,000 lin. ft.; and other work. Completion time 270 days. For particulars, address Bureau of Reclamation, P. O. Bin 151, Yuma, Arizona; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

OFFICIAL PROPOSALS

Bids: August 27, 1959.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 27th day of August 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name
DISTRICT No. 7, R. W. Sweet, District Engineer, 441 Van Duzee Street, Watertown, N. Y.		
Greenville Ontario, Canada	OBA 59-6	Ogdensburg Bridge: Canadian Approach Roadway

Miles	Type	Deposit	Estimated Cost of Work
0.43	Asphalt Concrete, Type 1A Pavement Plans	U.S. $20,000 U.S. $5	U.S. $362,000

NOTE:—Plans and Proposals for Contract No. O.B.A. 59-6 will be available at H. H. L. Pratley, Cons. Engineer, 909 Drummond Building, Montreal, Quebec, Canada and at Modjeski and Masters, Cons. Engineer, Forster at Sixth, Harrisburg, Pennsylvania, as well as the New York State Department of Public Works' Offices listed.

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New Yorks State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

READ THE OFFICIAL PROPOSAL COLUMN OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

EMPLOYMENT OPPORTUNITIES

NATIONAL COVERAGE

DISPLAYED RATE:

The advertising rate is $39.20 per inch for all advertising appearing other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

AUGUST 20TH ISSUE CLOSES AUGUST 10TH

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take 1/2 of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

ADDRESS BOX NO. REPLIES TO: Box No., Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Construction Manager—Growing General Construction firm located Northeast U. S. offers unusual opportunity to General Manager of experience and maturity. Applicant must have substantial background, both managerial and field in all types of building construction with proven background and labor relations, job coordinator, construction cost and profit making. Preferred age between 40 and 45 yrs. Firm is fully staffed. Present annual volume $12,000,000 to $15,000,000 and growing. Salary will be substantial with probable bonus. Participation in group life insurance, hospitalization and approved profit sharing plan. Apply only if fully qualified and deserving of high salaried position. Reply with full resume and expected salary to P-2118, Engineering News-Record.

Construction Superintendent — Immediate opening for man of large experience as construction superintendent and administrator for erection of medical science building costing approximately $2,500,000. This is first phase of large college building program. Salary open. Company offers additional employee benefits of group life insurance, hospitalization and profit sharing plan. Reply with full particulars as to background, experience and expected salary to P-2122, Engineering News-Record.

Asst. Prof.—To teach undergrad. courses in transportation, surveying, and fluid mechanics. Salary open. Civil Eng., University of No. Dak., Grand Forks.

Mechanical Design Engineer—Design and supervise construction of Heating, Ventilation and Air Conditioning Systems for Public and Industrial Buildings. 25 to 45 years of age. Midwest location. Town of 150,000. Hospital and Life Insurance paid for. Profit Sharing. P-2191, Engineering News-Record.

Wanted: Heavy Construction Project Manager. Minimum of 15 years experience in the U.S.A. Permanent Position. Salary open for the right man. Company doing business through the U.S.A. P-2135, Engineering News-Record.

Assistant Professor: Civil Engineering Department of College of Engineering, University of Nevada requires an additional staff member qualified as Assistant Professor. Address inquiries directly to Dean of Engineering, University of Nevada, Reno, Nevada.

Superintendent of construction for new institutional building on Long Island. Not over 45 years of age. Must be a producer and cost conscious. All trades including mechanical. Reply to P-2144, Engineering News-Record.

Sanitary Engineer to direct Division of Sanitation with generalized program in well established County Health Department. Population: 82,000. Liberal vacation, sick leave, retirement, longevity benefits. Cattaraugus County Health Department, 302 Laurens Street, Olean, New York. Salary: $6,564-$7,620.

Teaching positions to be filled by September 1, 1959 in Highway Technology and Electrical Technology. Send resume, qualifications and availability to Director of the Vermont Agricultural and Technical Institute, Randolph Center, Vermont. Phone Randolph 8-3391.

(Continued on page 116)

YOUNG GRADUATE CIVIL OR ARCHITECTURAL ENGINEER

Immediate opening for a young, recent college graduate, with a degree in either civil or architectural engineering, for a position in Estimating Department. This position is the initial phase of our development program where young engineers work through various departments in preparation as future superintendents and executives. An excellent opportunity for a young man, interested in a career in building construction, to grow with a large and expanding general contractor operating on a nation-wide basis.

Write full details covering experience, training, education, personal data, references, and salary requirements to:

Personnel Director

BLOUNT BROTHERS CONSTRUCTION CO.

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Dorr-Oliver's expanding activity in the Sanitary field has created a need for additional sales staff.

We are looking for men who have a B.S. or M.S. Degree in civil or chemical engineering with sanitary option. Some experience preferred in public health, consulting engineering or equipment sales.

Please send resume including salary requirement to:

C. R. FARRELL

DORR-OLIVER INC.

Havemeyer Lane **Stamford, Conn.**

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East coast engineering and construction firm has positions available for experienced Estimators in mechanical and electrical work. Prefer background of refining and chemical plant experience. Openings are for Home Office and field assignments in various U.S. locations. Send full resume and availability to:

P-2120, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

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Applicants should have degree in Civil or Mechanical Engineering and six or more years experience, with at least four years of this experience in sanitary engineering. The applicant must be a citizen of the United States or of the United Kingdom.

Please send detailed resume to Mr. H. O. Johnson

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Graduate Civil Engineer to do detailed design work involving street paving and/or sanitary sewer projects.

Letter of application with complete resume and minimum salary should be made to Department of Personnel, City Hall, Springfield, Missouri.

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Box No. P-2215, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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Man with formal education and diversified experience in Public Health Engineering to assume full responsibility for all phases of watershed control work, including administration of department and supervision of personnel.

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SW-2242, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

EMPLOYMENT OPPORTUNITIES

• POSITIONS VACANT
(Continued from page 114)

Asst. Civil Engr. for earth dam and large water pipeline project in western Ohio. Salary, $500 per month. Submit resume and references. P-2233, Engineering News-Record.

Sanitary Engineers—with at least two years' experience in design and development of sewerage and waste treatment systems or sewage treatment equipment sales, for customer liason assisting sales representatives. Location midwest and south central. Yeomans Brothers Company, 1999 N. Ruby St., Melrose Park, Ill. Fillmore 4-9600.

One senior mechanical engineer and one senior electrical engineer fully experienced in all phases design of mechanical and electrical respectively for all types of buildings. Mechanical engineer to have thorough knowledge of air conditioning design. Both positions permanent with established consulting engineering firm in south Florida. Send complete resume of education, experience and salary requirements. P-2260, Engineering News-Record.

Construction Superintendent, C. E. Positions open Missouri, Arkansas, Georgia. Must be experienced general construction, Public Works. Send resume, age, education, experience references, salary desired. P-2201, Engineering News-Record.

Construction Superintendent. $10,000. Ex-perienced in home project work. West side of Chicago. Permanent. 70 year old firm. Caron Construction Co., 7327 W. North Ave., River Forest Ill., Mansfield 6-1383.

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Millwright or Carpenter Superintendent 25 years experience. Available now. PW-2234, Engineering News-Record.

Construction Superintendent; ability to or-ganize small or large projects. 25 years experience, industrial commercial and mass housing projects. Available immediately. H. A. Neyer, 1625 Western Hills Lane, Cinti. 38, Ohio. Tel. WAbash 1-1424.

Construction Superintendent—24 years heavy construction, excavation, tunnels, hydraulic structures, hydro and diesel electric power plants, dams, pumping plants, sewage, chemical, mechanical, crushing plants, conveyors, ore dressing, buildings, structural steel, estimate, project planning, cost control and administration. Extensive Latin American experience, tri-lingual—Highest references. Available Aug. 1st. PW-2184, Engineering News-Record.

Construction Superintendent B.S.C.E. Hvy. earthwork, highways, flood control, 15 yrs. exp. bidding, estimating, supervising, now employed east, prefer west coast. PW-2167, Engineering News-Record.

Field Superintendent for construction of sewers, water, grading and concrete jobs. Age 47, no college degree, 24 years practical experience, ability to complete jobs from start to finish. Salary open. PW-2150, Engineering News-Record.

Rock Supt. or Asst. Supt. on heavy construc-tion. 25 years experience. Will travel. Available now. PW-2014, Engineering News-Record.

Civil Engineer. MCE. 35. Registered. with wide experience in supervision of major hiway, airport and earthfill dam projects seeks position with engineer or contractor, domestic or foreign. Fluent Spanish. PW-2104, Engineering News-Record.

Civil Engr.—B.S.C.E., '50 6 yrs. exp. precise surveys—plane & geodetic, field & office, domestic & O.S. Speak Spanish and Portuguese. Latin American preferred. PW-2170, Engineering News-Record.

Construction Supt. General Construction. PW-8896, Engineering News-Record.

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RA-2115, Engineering News-Record Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

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School Construction Supervisor, Engineer, currently employed by Owners & Architects jointly, 89,600, on several schools but seeking change of location to California or Southwest. PW-2269, Engineering News-Record.

Dam Engineer 29 years on design and con-struction of hydroelectric and irrigation works. Both Federal and private agencies; overseas and domestic. Age 54, married. Desires management executive or administrative position. PW-2186, Engineering News-Record.

Pilot—Charter Pilot (29 years of age— married—three children) desires change to Corporation Pilot or Co-Pilot. 3500 hours flight time—Commercial License—Single & Multi-Engine—Instrument — Instructor ratings. Willing to re-locate. Resume on request. Roy F. Peacock—3821 Golden—Arlington, Calif.

General Superintendent: Have been responsi-ble for administrative direction of project operations, such as change orders, negotiations, sub-contractor coordination, contractor requisitions, handling of claims, prepare schedules and progress reports, complete charge of field personnel and buying job out. Age 38, married, will relocate. Have built 3 Nike sites, 2 hospitals, 5 MB-3A servicing docks, 1 factory, bridges, culverts, mass housing, well pointing, blasting and caissons. Supervised work in Fla., Ill., Pa., N. J., Conn., Alb., and Del. areas. Over one year in each state. Self-made-hard worker—I get results! PW-2218, Engineering News-Record.

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Chief Engineer Estimator Building Construc-tion—Age 56. Graduate Engineer. Extensive experience, as Chief, assume full responsibility preparation of competitive bids, mostly public jobs. Handle usual office routine, have fine engineering background, seeks desirable connection. PW-2261, Engineering News-Record.

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Soils Engineer seeks opportunity in founda-tion design field. Experience in earth dam and foundation design, laboratory development and supervision. Age 28, M. Sc. in soil mechanics. PW-2247, Engineering News-Record.

Executive Assistant BSCE, M in Bus. Ad. Top level exper. in constr. & consulting work. Seeks responsible position as assistant to busy executive. Dom. or foreign. Under 30, married, salary open. PW-2276, Engineering News-Record.

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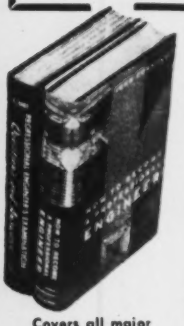

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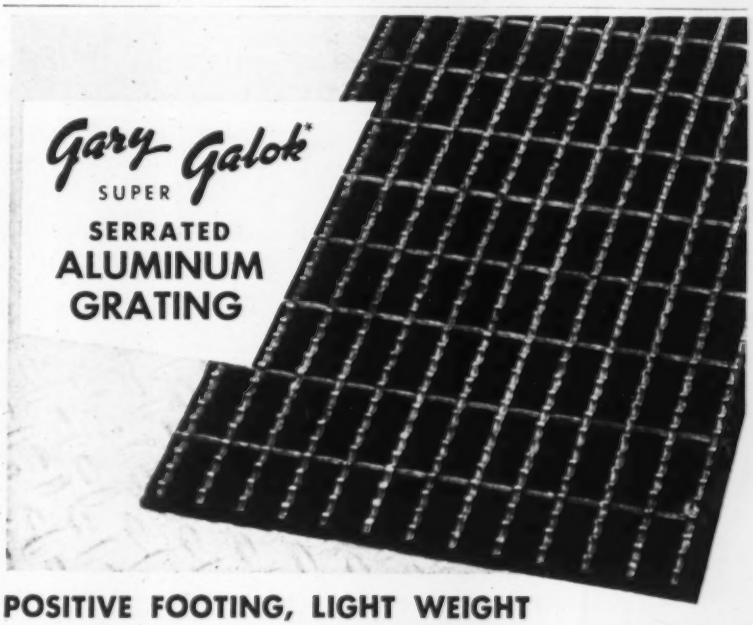

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Field Inspection: A Beginning

BUILDING CODE REQUIREMENTS just made by the Town of Oyster Bay, N. Y., are worth widespread copying. The code changes now place construction control and responsibility exactly where they belong—in the hands of professional engineers and registered architects (see p. 26).

The changes were spurred by the increasing number of construction failures throughout the U.S. that can be traced to lack of designer inspection during construction or to redesign for the sake of building economy—with little regard for safe design margins.

In Oyster Bay, from now on, a professional engineer or registered architect will not only inspect construction, but work will stop "if for any reason" he ends his supervision.

Builders should certainly be responsible for construction methods. But once construction starts, the contractor should neither assume nor be made to carry what is the designer's prime function: Insure that interest of the owner and the public is protected by erection of a safe and durable structure according to approved plans and specifications.

Experience has shown there would be fewer structural failures if designers inspected the field work. The Oyster Bay code revisions are a start toward what should be general practice rather than rare example.

Lesson From a Dusty Floor

THE DUST STORM from an eroding concrete floor that plagued the American National Exhibition in Moscow last week obscured some of the exhibits but it did illuminate this fact: Normal Russian construction is far below Western standards.

The floor in the gold-anodized aluminum dome used for science exhibits (ENR June 25, p. 24) was constructed by the Russians with local material and local labor. They refused to build it to American specifications, instead used their own typical methods. When visitors crowded in, the surface deteriorated, filling the air with dust. Since then, the floor has been resurfaced with asphalt (see p. 24).

Usually, construction stories emanating from the Soviet Union tell of great advances—of factory precasting and prestressing of building components and long-span concrete bridge construction. Such stories are published here because of the possibility that we might be able to improve our own methods from what we learn. But they obscure the fact—as confirmed by American engineers who have travelled in the Soviet Union recently—that the stories usually are about isolated structures, which are pioneering projects for the Soviets, carried out under special controls and supervision not given to ordinary projects—or the structures mostly are on-site experiments that fortunately succeeded, or, at best, are pilot-plant operations.

Beyond a doubt, the Soviet Union has had its capable engineers. But the country still has a long way to go before its run-of-the-mill construction comes up to Western standards. The dust storm in the U.S. exhibit makes that clear.

First Things First

THERE ARE LESSONS for all those who dedicate themselves to public service through construction in a recent move of the World Health Organization (ENR July 23, p. 26). This agency of the United Nations, after more than eight years of promoting a broad range of public health programs in the less developed areas of the world, has said in effect:

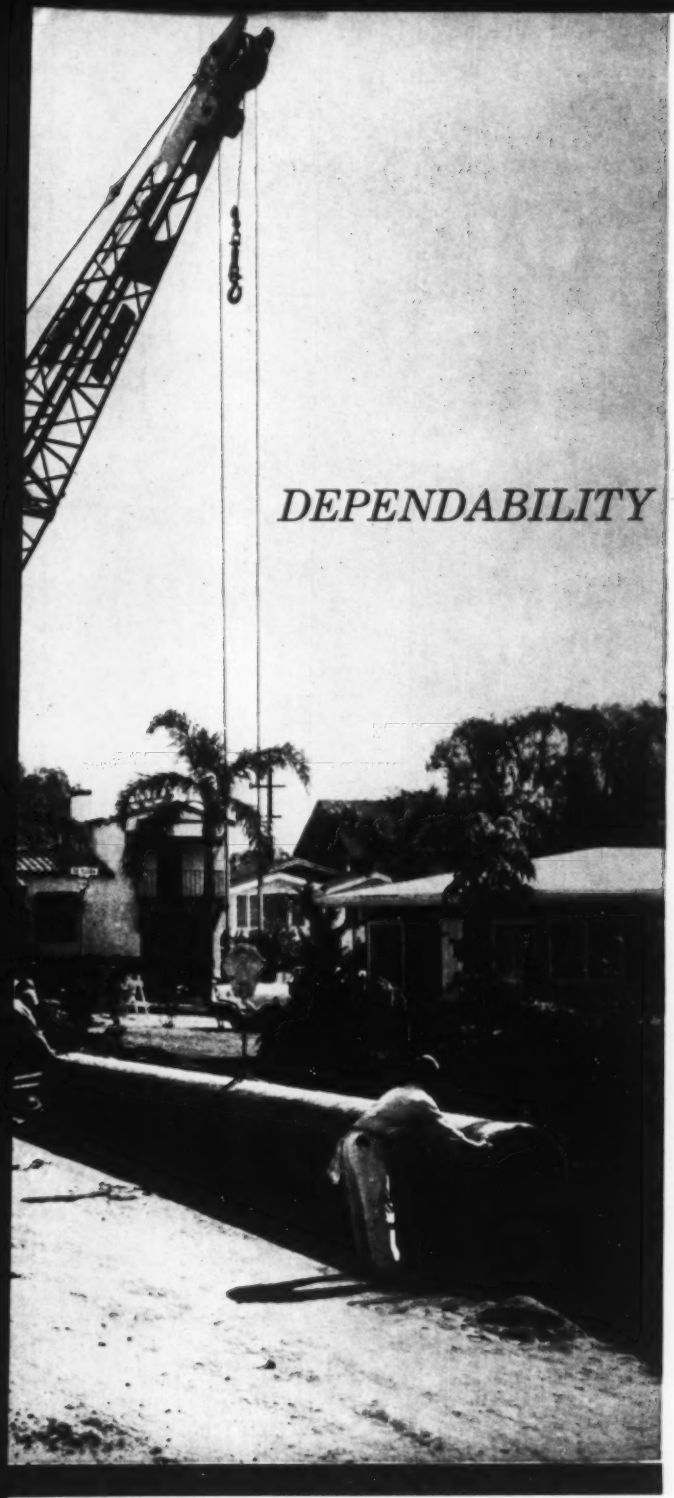
Let's quit spreading ourselves so thin; we're losing ground on the broad front. Let's put our efforts into the one program from which we can expect best results, the one the people know they need and truly want. We won't cut out our other projects entirely, but let's put first things first and spend our next ten years on a project to bring pure water in ample quantities to all the world's people.

WHO's global water-supply program deserves the support of all UN members as well as the support of individual citizens in these nations. For it is estimated that 100 million of the world's people are still without ample safe water.

A new and vigorous attack is promised in WHO's "spearhead program" to bring piped water to communities large and small around the world. It's a program figured to call ultimately for expenditures on the order of $25 billion—a sum to be spent largely on construction, pipe-laying and well-digging in communities with as few as 500 persons in any UN country requiring water facilities. For financing, WHO recommends a revolving fund in each such country to provide loans to communities. Further, it is recommended that a special account, fed by contributions, could help governments plan their water-supply programs.

WHO is to be applauded for its reasoning that an ideal public works or public health program should be dramatic to be "sold"; it should have more than a reasonable expectation of easy and prompt execution; it should require a minimum promotion time; and it should affect the greatest number of people. Perhaps the ideal program rarely occurs, but these attributes of it are a good measure of the priorities of any given set of proposed public works programs.

WHO is to be applauded for its resolution to put first things first. And construction men—sanitary engineers, most particularly—can be gratified that in WHO's choice there is a global public service challenge worthy of them.



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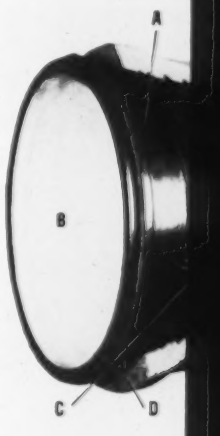

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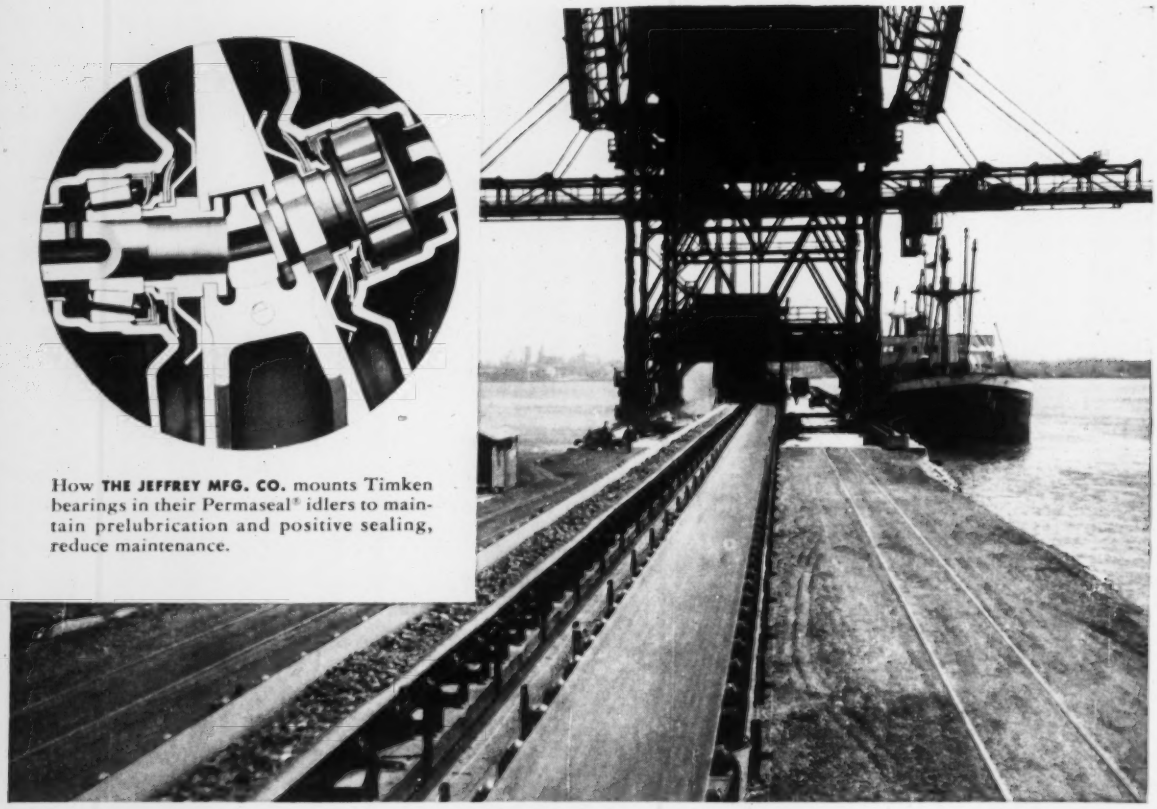

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